

OUTDOOR LED SCOREBOARDS WITH GYRUS DRIVER

SERVICE MANUAL

P1647 & P1753

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Rev 08
30 June 2022

Single-Section Models		
ADPC-2023	BA-2518	MS-2032
ADPC-2031	BA-2618	MS-2126
ADPC-2033	BA-2715	MS-3918
ADPC-2034	BA-2718	RO-2010
ADTI-2003	CR-2002	RO-2011
ADTI-2019	CR-2003	RO-2019
ADTI-2032	FB-824	SO-918
BA-618	FB-4005	SO-2008
BA-624	FB-2030	SO-2013
BA-2005	FB-2036	SO-2918
BA-2010	FB-2037	TI-218
BA-2014	FB-2038	TI-2003
BA-2017	MS-915	TI-2010
BA-2019	MS-918	TI-2012
BA-2022	MS-2002	TI-2015
BA-2023	MS-2004	TI-2019
BA-2030	MS-2006	TI-2024
BA-2031	MS-2012	TI-2032
BA-2032	MS-2024	TI-2033
BA-2033	MS-2025	TI-2034
BA-2034	MS-2028	TI-2035
BA-2035	MS-2029	
BA-2515	MS-2030	

Multi-Section Models		
BA-1518	FB-2020	MS-2009
BA-2025	FB-2021	MS-2027
BA-2026	FB-2022	MS-2031
BA-2027	FB-2023	MS-2918
BA-2028	FB-2024	SO-2011
BA-2029	FB-2025	SO-2018
BA-2125	FB-2026	SO-2019
BA-2127	FB-2027	SO-2021
FB-2018	FB-2028	SO-2023
FB-2019	FB-3010	SO-2043

Tennis Models	
TN-2603	TN-2651
TN-2604	TN-2652
TN-2605	TN-2653
TN-2606	TN-2654
TN-2607	TN-2655
TN-2609	TN-2656
TN-2650	TN-2657

Hybrid FB Models
FB-2700 Series

Modular Football Models	
FB-2500 Series	FB-2600 Series

Pari-Mutuel Models	
PM-2100	PM-2108
PM-2101	PM-2109
PM-2102	PM-2110
PM-2103	PM-2111
PM-2104	PM-2112
PM-2105	PM-2113
PM-2106	PM-2114
PM-2107	

Motorsports Models		
AR-1522	AR-2426	CH-3105
AR-2401	AR-2427	DR-2482
AR-2402	AR-2428	DR-2483
AR-2404	AR-2429	DR-3682
AR-2407	CH-3001	DR-3683
AR-2421	CH-3002	DR-4882
AR-2422	CH-3003	DR-4883
AR-2423	CH-3004	
AR-2424	CH-3006	

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FCC Statement

Supplier Declaration of Conformity (SDoC)

This product complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

Warning: The user is cautioned that changes and modifications made to the equipment without the approval of manufacturer could void the user's authority to operate this equipment.

Industry Canada Regulatory Information

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

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DAKTRONICS

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1 Introduction

This manual explains the troubleshooting and service of Daktronics Outdoor LED Scoreboards. For additional information regarding the safety, installation, operation, or service of these displays, refer to the telephone numbers listed in **Section 4: Daktronics Exchange and Repair & Return Programs (p.28)**. This manual is not specific to a particular installation.

Important Safeguards

- Read and understand all instructions before servicing the display.
- Disconnect the display power when not in use or when servicing.
- Disconnect the display power before servicing power supplies to avoid electrical shock. Power supplies run on high voltage and may cause physical injury if touched while powered.
- Do not modify the structure or attach any panels or coverings to the display without the express written consent of Daktronics.
- Do not disassemble control equipment or electronic controls of the display; failure to follow this safeguard will make the warranty null and void.
- Do not drop the control equipment or allow it to get wet.

Specifications Label

Power specifications as well as serial and model number information can be found on an ID label affixed to the display, similar to the one shown in **Figure 1**.

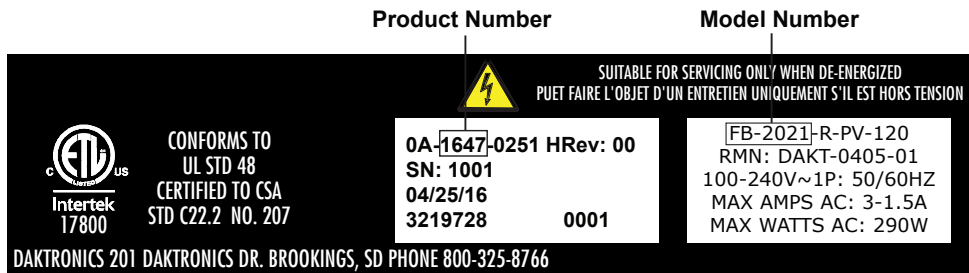
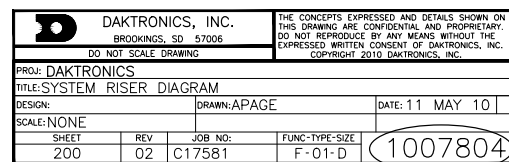


Figure 1: Specifications Label

Please have the assembly number, model number, and the date manufactured on hand when calling Daktronics customer service to ensure the request is serviced as quickly as possible. Knowing the facility name and/or job number will also be helpful. Note that the Product Number(s) are sometimes used to distinguish different generations of displays that have the same model number.

Resources

Figure 2 illustrates a Daktronics drawing label. The drawing number is located in the lower-right corner of a drawing. This manual refers to drawings by listing the last set of digits. In the example, the drawing would be referred to as **DWG-1007804**.



Drawing Number

Figure 2: Drawing Label

All references to drawing numbers, appendices, figures, or other manuals are presented in bold typeface. Any drawings referenced in a particular section are listed at the beginning of it as shown below:

Reference Drawings:

System Riser Diagram **DWG-1007804**

Daktronics identifies manuals by the DD or ED number located on the cover page.

Listed below are drawing types commonly used by Daktronics, along with the information typically provided. All drawings referenced in this manual are found in the appendices.

- **Schematic Drawings:** describe internal power and signal wiring as well as interconnections between display sections; may also include digit designations and driver addressing information
- **Shop Drawings:** describe mounting methods to structural elements, access method (front or rear), and power and signal entrance points
- **System Riser Diagrams:** describe power/signal connections between components and the control location; may also include control room layout and schematic
- **Final Assembly Drawings:** describe internal display component locations and detailed product appearance with part numbers and quantities

Project-specific information takes precedence over any other general information found in this manual. Ensure all applicable material has been gathered before servicing. Contact a Daktronics sales coordinator or project manager.

Daktronics Nomenclature

Most display components have a white label that lists the part number (**Figure 3**). Part numbers will also appear on certain drawings. If a component is not found in the **Replacement Parts (p.16)**, use the label to order a replacement. Refer to **Section 4: Daktronics Exchange and Repair & Return Programs (p.28)** if replacing or repairing any display component.

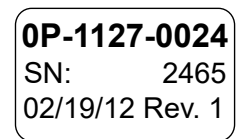


Figure 3: Part Label

Main Component Labels	
Part Type	Part Number
Individual circuit board	0P-XXXX-XXXX
Assembly; a collection of circuit boards	0A-XXXX-XXXX
Wire or cable	W-XXXX
Fuse	F-XXXX
Transformer	T-XXXX
Metal part	0M-XXXXXXX
Fabricated metal assembly	0S-XXXXXX
Specially ordered part	PR-XXXXX-X

Accessory Labels	
Component	Label
Termination block for power or signal cable	TBXX
Grounding point	EXX
Power or signal jack	JXX
Power or signal plug for the opposite jack	PXX

Product Safety Approval

Daktronics outdoor scoreboards are ETL-listed, tested to CSA standards, and CE-labeled for outdoor use. Contact Daktronics with any questions regarding testing procedures.

2 Troubleshooting

Disconnect power before doing any repair or maintenance work on the display.
Permit only qualified service personnel to access internal display electronics.
Disconnect power when not using the display.

Troubleshooting Table

This section lists potential problems with the system, indicates possible causes, and suggests corrective action. This list does not include every possible problem, but it does represent some of the more common situations that may occur.

Problem	Possible Cause	Solution/Items to Check
Display does not light, and console does not work	No power to the display	Check that the main circuit breaker for the display is on.
		Check that the display is receiving 100-240 VAC power.
	No power to the control console	Ensure the console is plugged into a 120 or 240 VAC power supply.
		Exchange the console with a working one, and enter the correct sport code and/or radio settings to test. Replace console if necessary.
Display digits do not light, but console works	No wired signal from control console	Check that the display is receiving 100-240 VAC power.
		Check that the red DS5 LED on the driver lights up when sending commands from the console. Refer to LED Drivers (p.8) .
	No radio signal from control console	Verify that both the console and display antennas are securely tightened and in a vertical position.
		Keep the console 20–1500' (6–457 m) away from the display. Check that the green POWER and amber RADIO IN RANGE indicators on the radio receiver in the display light up when the control console is powered on. Refer to Radio Connections (p.14) . Move the console 20–30' (6–9 m) from the display and test again.
		Replace the radio receiver.
	No signal to driver	Check that the display is receiving 100-240 VAC power.
		Check that the red DS5 LED on the driver lights up when sending commands from the console. Refer to LED Drivers (p.8) .
		Exchange the driver with a working one of the same part #. Replace if necessary. Refer to LED Drivers (p.8) .
	No power to driver	Check that the red DS8 LED on the driver remains lit up when the display is powered on. Refer to LED Drivers (p.8) .

Problem	Possible Cause	Solution/Items to Check
Display digits light, but not in the correct order	Incorrect sport code	Ensure the correct sport code is being used for the display model. Refer to the appropriate console operation manual.
	Incorrect driver address	Ensure all drivers are set to the correct address. Refer to Setting the Driver Address (p.10) .
Digits light, console works, but nothing displays	No wired signal from control console	(see solution on previous page)
	No radio signal from control console	(see solution on previous page)
	Bad/damaged field wiring	Check that the red DS5 LED on the driver lights up when sending commands from the console. Refer to LED Drivers (p.8) .
Display works, but some LEDs always stay on	Short in digit, segment, or indicator circuit	Exchange the digit/segment/indicator with a working one of the same part # to verify the problem. Replace if necessary. Refer to Replacing Digits (p.6) , Replacing Digit Segments (p.7) , or Replacing Colons, Decimals and Indicators (p.7) .
Display works, but some LEDs do not light or they blink	Bad connection	Verify the connector on the back of the digit circuit board is secure.
	Bad digit or driver	Exchange the digit or driver with a working one of the same part # to verify the problem. Replace if necessary. Refer to Replacing Digits (p.6) , Replacing Digit Segments (p.7) , Replacing Colons, Decimals and Indicators (p.7) , or LED Drivers (p.8) .
Display works, but some digits do not light	Bad digit or driver	(see solution above)
	Incorrect sport code	(see solution above)
	Incorrect driver address	(see solution above)
	Wrong console controlling the display	Another console's radio signal may be transmitting to the display. For example, a football and baseball scoreboard that are within 1500' (457 m) of each other. Change the radio settings as described in Radio Connections (p.14) .
	Radio Interference	There may be other radio transmissions in the area that overpower the console. If it is not possible to disable the interfering device, it may be necessary to run a wired signal connection instead.
	Bad breakout board on segmented digit	Replace the breakout board with a working one of the same part # to verify the problem. Replace if necessary. Refer to Replacing Digit Segments (p.7) .
	Blown fuse(s) on power supply circuit board	Replace the fuse(s) on the circuit board. Refer to Power Supplies (p.13) .

Problem	Possible Cause	Solution/Items to Check
Display works, but one section of digits does not light	Bad multi-section connection	Verify power/signal interconnects between display sections are properly connected. Refer to appropriate schematic drawings.
	Bad power supply	Exchange the power supply with a working one of the same part # to verify the problem. Replace if necessary. Refer to Power Supplies (p.13) .
	Bad power supply circuit board	Exchange the circuit board with a working one of the same part # to verify the problem. Replace if necessary. Refer to Power Supplies (p.13) .
Speed of Pitch (SOP) digits do not light	No signal from SOP driver	Ensure that there is a separate signal run connected to the SOP driver from a dedicated All Sport console using code 5500 . Refer to schematic drawings and ED-12224 (www.daktronics.com/manuals).

Component Locations and Access

Component location varies with each display model. Refer to the component location drawings attached to the product specification sheets listed in **Appendix A**. For component locations of Modular and Hybrid Football Scoreboards, refer to the tables in **Appendix A**.

All internal electronic components are reached by opening a digit panel or an access door. Look for labels similar to those shown in **Figure 4** to access primary display components. Note that the same labels are on both front and rear access panels.

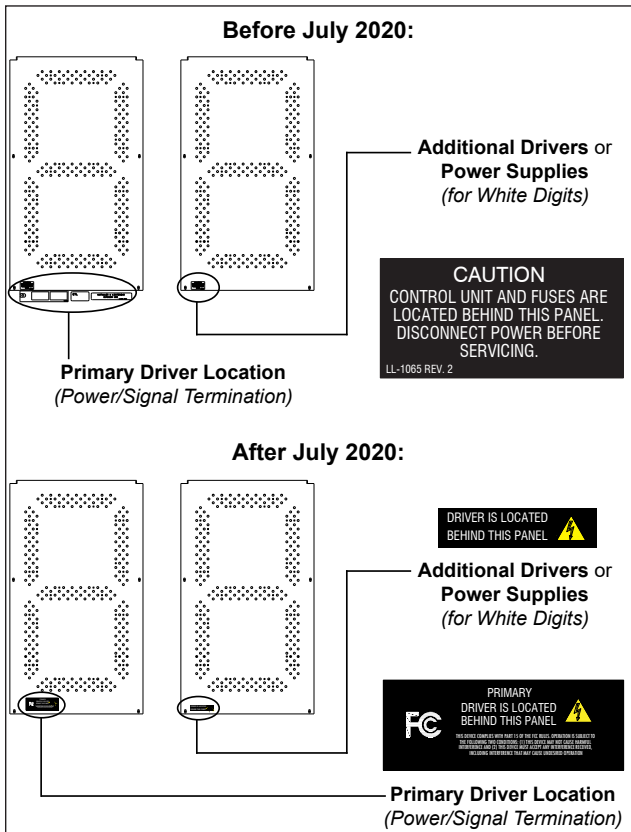


Figure 4: Component Location Labeling

Digit panels are held in place on the display face by an offset flange across the top and by screws at the bottom, as shown in **Figure 5**.

To open a digit panel:

1. Hold the digit panel in place by putting hand pressure on it and remove the holding screws.
2. Carefully lift the panel away from the display, sliding it out and down.

Note: If the panel is not held in place when the screws are removed, it could drop and possibly damage the LEDs or the digit harness.

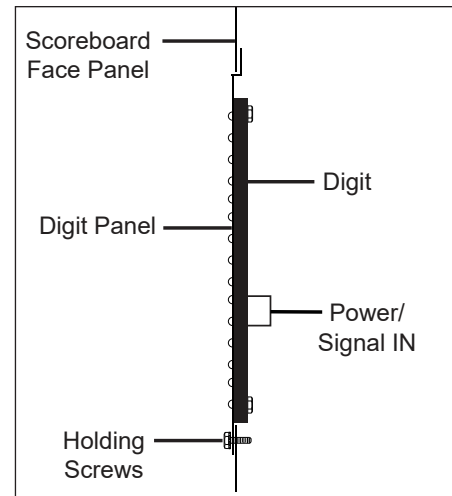


Figure 5: Weather-Sealed Digit

With a non-digit access panel, simply remove the top, side and bottom screws holding it in place. Some panels are hinged and swing open when the screws are removed or loosened. Rear access panels can be lifted up and off through keyholes.

When closing a digit or access panel, make sure all screws/latches are holding it firmly in place to prevent moisture and debris from entering the display cabinet.

Replacing Digits

Digits that are 18" or smaller have LEDs embedded on a single circuit board that is mounted to a black polycarbonate tray and encased in protective gel. This weather-sealed digit tray is mounted to the back of a digit panel as shown in **Figure 6**. Multiple digits may be secured to a single face panel. Do not attempt to remove individual LEDs; in the case of a malfunctioning LED or digit segment, replace the entire digit.

To replace a digit:

1. Open the digit panel as described in **Component Locations and Access (p.5)**.
2. Disconnect the 9-pin plug from the back of the digit. Release the connector by squeezing the locking tabs together while pulling the connector free.
3. Use a 9/32" nut driver to remove the nuts securing the digit to the inside of the panel, and then lift the digit off the standoff studs.
4. Position a new digit over the studs, and then tighten the nuts.
5. Reconnect the 9-pin plug. This is a keyed connector and it will attach in one way only. Do not force the connection.
6. Close and secure the digit panel, and then power up and test the display to verify the issue has been resolved.

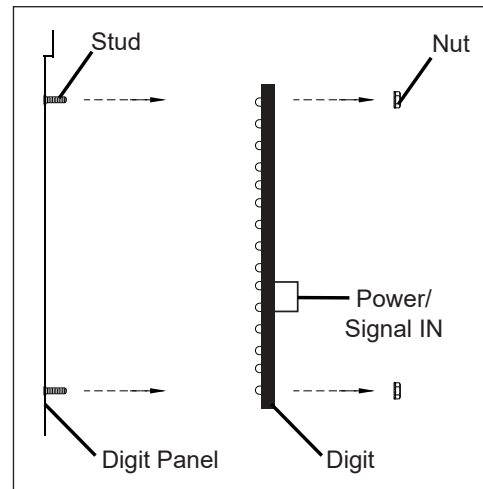


Figure 6: Weather-Sealed Digit Assembly

Replacing Digit Segments

Digits that are 24" or larger are composed of seven circuit board segments. The digit segment circuit boards are mounted to the back of the digit panel (**Figure 7**). Do not attempt to remove individual LEDs; it may be possible to make repairs by removing just the defective segment.

To replace a digit segment:

1. Open the digit panel as described in **Component Locations and Access (p.5)**.
2. Disconnect the 2-pin (or 4-pin) plug from the back of the digit segment by squeezing the locking tabs together and pulling the connector free.
3. Use a 9/32" nut driver to remove the nuts securing the digit segment to the inside of the panel, and then lift the digit segment off the standoff studs.
4. Position a new digit segment over the studs, and then tighten the nuts.
5. Reconnect the 2-pin (or 4-pin) plug. This is a keyed connector and it will attach in one way only. Do not force the connection.
6. Close and secure the digit panel, and then power up and test the display to verify the issue has been resolved.

Some LED digit segments are connected to a breakout board (**Figure 8**). If all the segments of an entire digit do not work, it may be necessary to replace the breakout board instead. Breakout boards are replaced in the same manner as a digit segment.

Note: Prior to May 2016, breakout boards were contained within a small metal enclosure. These enclosures have a cover that needs to be removed to gain access to the breakout board.

Replacing Colons, Decimals and Indicators

Colons, decimals, and other indicators are replaced in the same manner as a digit segment. Some indicators will be connected to a breakout board (**Figure 8**). If no indicators work, it may be necessary to replace the breakout board instead. Breakout boards are replaced in the same manner as a digit segment.

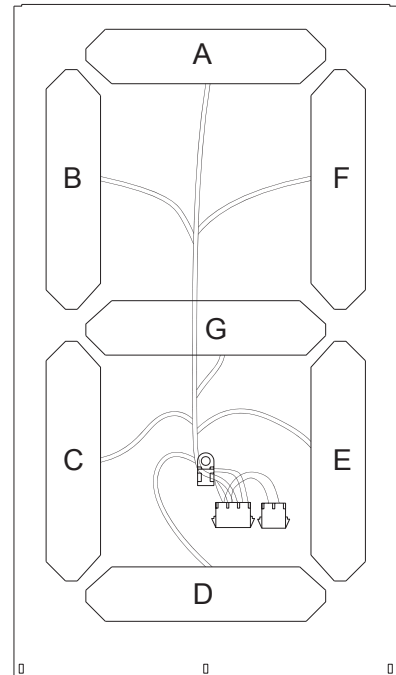


Figure 7: Digit Segments & Panel

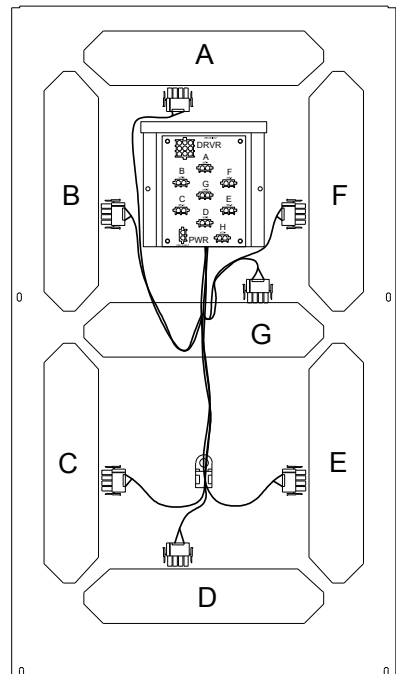


Figure 8: Breakout Board Enclosure

Segmentation and Digit Designation

Reference Drawings:

Segmentation, 7 Segment Bar Digit **DWG-38532**

In each digit, certain LEDs always go on and off together. These groupings of LEDs are referred to as segments. **DWG-38532** in **Appendix A** details which connector pin is wired to each digit segment and the wiring color code used throughout the display.

Component Location drawings also specify the driver connectors controlling the digits. Numbers shown in the upper half of each digit indicate which connector is wired to that digit.

Schematics

For advanced troubleshooting and repair, it may be necessary to consult the schematic drawings. These drawings, listed in **Appendix A**, show detailed power and signal wiring diagrams of internal display components such as drivers and power supplies as well as optional components like TNMCs, radio receivers, and horns.

LED Drivers

Reference Drawings:

Specifications; Gyrys LED Driver, 16 Col..... **DWG-3071833**

LED drivers perform the task of switching digits on and off within the display. LED drivers are located inside a driver enclosure. Refer to **Figure 9** and **Figure 10** to view the location and components of a driver enclosure. For detailed descriptions and pin-outs of the driver jacks, refer to **DWG-3071833**.

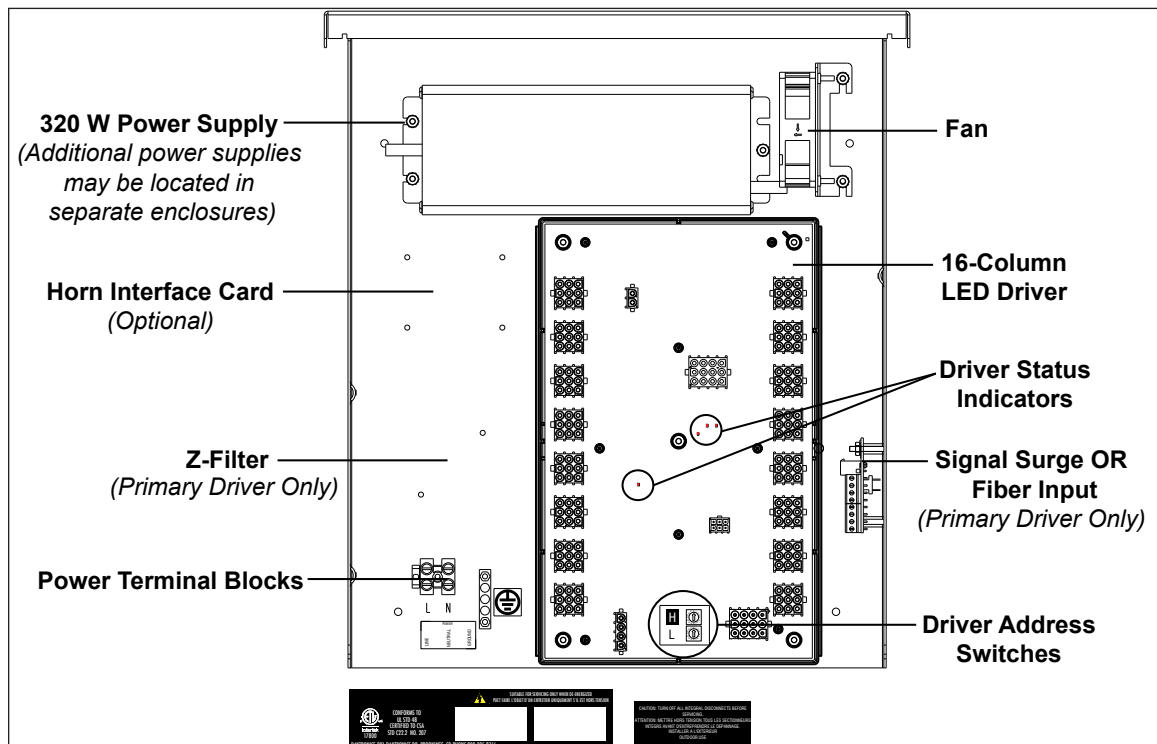


Figure 9: Driver Enclosure Components

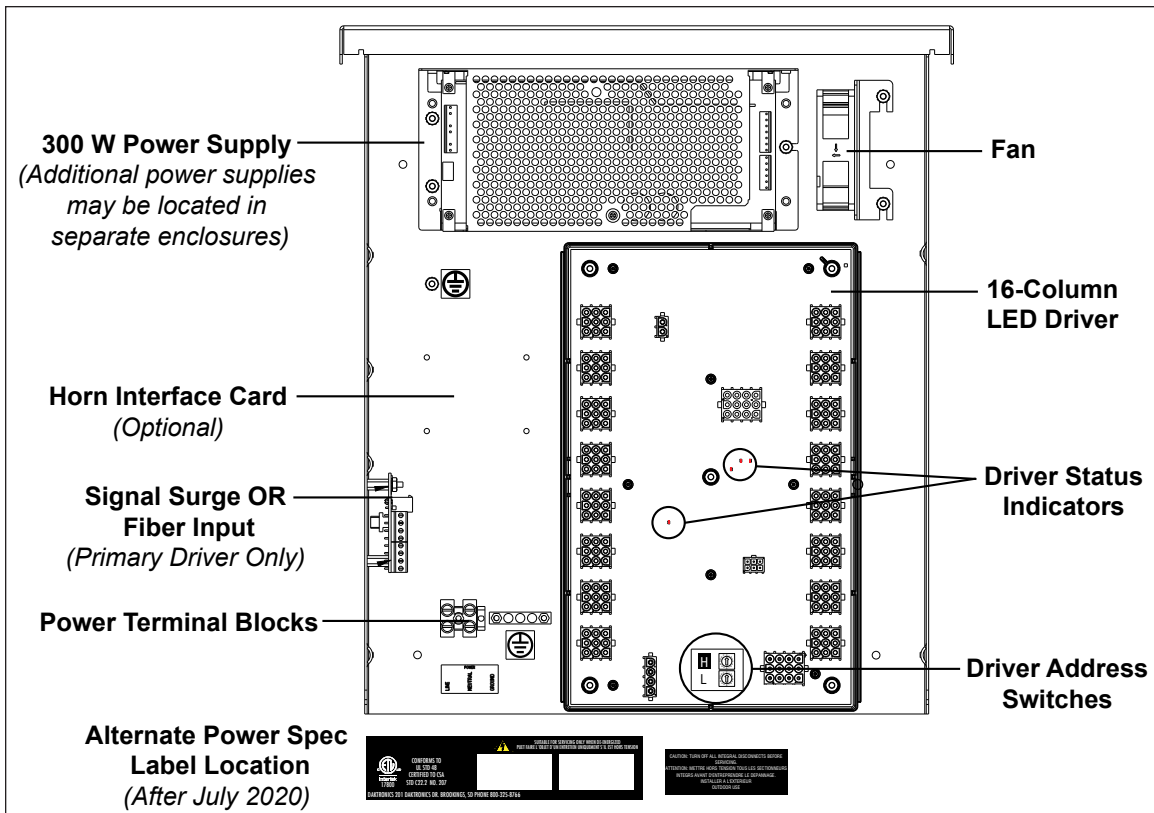


Figure 10: Driver Enclosure Components (Prior to May 2022)

Several models contain more than one driver to accommodate all of the digits and indicators. Refer to the component location drawings in **Appendix A** to determine the type and number of drivers for a particular model.

When troubleshooting driver problems, four red LEDs labeled **DS1**, **DS2**, **DS5**, and **DS8** provide the following diagnostic information:

LED	Function	Operation	Summary
DS1	Radio/ RS-232 RX	Blinking or off	DS1 will be blinking when the driver is receiving radio signal and off when there is no signal.
DS2	Status	Blinking	DS2 will be blinking at one second intervals to indicate the driver is running.
DS5	Signal RX	Blinking or off	DS5 will be blinking when the driver is receiving current loop signal and off when there is no signal.
DS8	Power	Steady on	DS8 will be on and steady to indicate driver has power.

Note: While it is necessary to have the display powered on to check the LED status indicators, always disconnect power before servicing.

Multiple Driver Connections

Displays with multiple drivers operate using a primary/secondary driver system. If it appears as though only a certain group of digits is not functioning, there may be a problem with the secondary driver(s) or the power/signal connection from the other driver(s). Refer to the appropriate [scoreboard installation manual](#) or the schematics in **Appendix A** for more information.

Replacing a Driver

1. Open the digit panel or display face panel nearest the driver as described in **Component Locations and Access (p.5)**.
2. Remove the metal cover of the driver enclosure by lifting it up, then back and down to expose the driver components.
3. Disconnect all plugs from the driver by squeezing the locking tabs together and pulling the connectors free. It may be helpful to label the cables or take a picture to know which plug goes to which jack when connecting the replacement driver.
4. Remove the nuts securing the driver to the inside of the enclosure.
5. Carefully lift the driver from the display cabinet and place it on a clean, flat surface.
6. Position a new driver over the screws and tighten the nuts.
7. Reconnect all plugs to their mating jacks on the new driver. The connectors are keyed and will attach in one way only. Do not force the connections.
8. Ensure the new driver is set to the correct address. This will be the same address as the old driver being replaced. Refer to **Setting the Driver Address (p.10)**.
9. Put the metal cover back on the enclosure, securely close the access panel, and then power up and test the display to verify the issue has been resolved.

Setting the Driver Address

Reference Drawings:

Address Table; Rotary Switches H and L **DWG-1198765**

Since the same LED drivers can be used for many display models, each driver must be set to receive the correct signal input, or address, for the model in which it is being used.

Addresses are set through the **S2 (L)** and **S3 (H)** rotary switches on the driver (**Figure 11**) using a small flathead screwdriver.

Refer to the tables on the following pages or an older driver being replaced to determine the correct address setting. Then refer to **DWG-1198765** for addressing information of driver addresses 1–255.

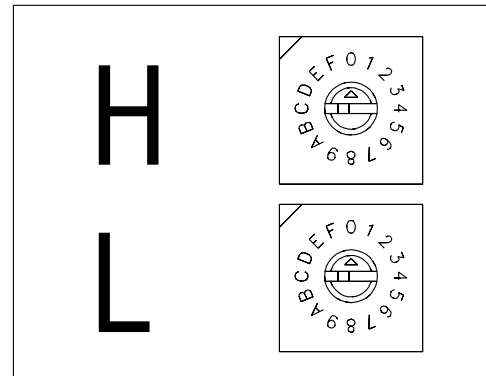


Figure 11: Driver Address Dials

Motorsports Models

Model	Driver # & Address
AR-2401 AR-2402 AR-2404	A1 11
AR-2406	A1 11 A2 12
AR-2407	A2 12

Model	Driver # & Address
DR-2482 DR-3682 DR-4882	Left Lane: A1/A2* 13 Right Lane: A1/A2* 14
DR-2483 DR-3683 DR-4883	Left Lane: A1/A2* 11 Right Lane: A1/A2* 12

Display Section	Driver # & Address
Time / Lap Counter Position 1-3 Position 1-5	A1 11
Position 6-10	A1 12
Position 11-15	A1 13
Position 16-20	A1 14

*DR-3682 & DR-3683 only

Troubleshooting

Single-Section Models

Model	Driver # & Address
BA-618 BA-624 BA-2010 BA-2017	BA-2515 BA-2518 BA-2618 A1 61
BA-2715	BA-2718 A1 62
BA-2005 BA-2014	BA-2019 BA-2030 A1 72 A2 70 A3 71
BA-2022**	A1 70 A2 64
ADPC-2023 ADPC-2031 ADPC-2033 ADPC-2034	BA-2023 BA-2031 BA-2033 BA-2034 BA-2035 A1 3
BA-2032	A1 60
CR-2002	A1 12
CR-2003	A1 12 A2 13
FB-824 FB-4005 MS-915 MS-918 MS-2002*	MS-2006* MS-2025 MS-3918 SO-918 SO-2918 A1/A2* 11
FB-2036 FB-2037	FB-2038 A1 15 A2 19

Model	Driver # & Address
FB-2030	A1 1 A2 10
MS-2004	MS-2012 A1 74 A2 75
MS-2024	A1 72 A2 73 A3 71
MS-2028 MS-2030	MS-2032 A1/A2* 71
MS-2029	A1 15 A2 71
MS-2126	A1 17
RO-2010 RO-2011	RO-2019 A1 12
SO-2008*	A1/A2* 17
SO-2013*	A1/A3* 13 A2 14
ADTI-2003 TI-218 TI-2003	TI-2010 TI-2015 TI-2024 A1 2
ADTI-2019 ADTI-2032 TI-2012 TI-2019	TI-2032 TI-2034 TI-2035 A1 1
TI-2033	A1 2 A2 1

* Additional driver(s) only for models with white digits.

** Prior to October 2018: A1 = 64, A2 = 70.

Modular Football Models

Information Shown	Driver # & Address
Clock	A1 15
HOME / GUEST; DOWN / TO GO; BALL ON / QTR	A1 19

Hybrid Football Models

Model	Driver # & Address
FB-2718 FB-2719 FB-2720 FB-2721	FB-2722 FB-2723 FB-2724 FB-2725 A1/A2* 15

* Additional driver(s) only for models with white digits.

Multi-Section Models

Model	Driver # & Address	
BA-1518	A1/A2*	62
BA-2025 BA-2125	A1	72
	A2	70
	A3	71
BA-2026	A1	72
	A2/A3*	70
	A3/A4*/A5*	71
BA-2027 BA-2127	A1	72
	A2	70
	A3	71
	A4	1
BA-2028 BA-2029**	A1/A7**	72
	A2/A3*	70
	A3/A4*/A5*	71
	A4/A6*	
FB-3010	A1	10
	A2	1
MS-2009	A1	72
	A2/A4*	71
	A3*	73
MS-2027	A1	15
	A2	71
	A3	72
	A4	73

Model	Driver # & Address	
FB-2018	FB-2025	
FB-2019	FB-2026	
FB-2020	FB-2027	
FB-2021	SO-2018	A1/A3* 15
FB-2022	SO-2019	A2/A4*** 19
FB-2023	SO-2021***	
FB-2024	SO-2023***	
FB-2028	A1/A2 (top):	15
	Prior to May 2016:	
	Red/Amber	32
	White	12
	A3/A4 (bottom):	19
MS-2031 MS-2918	A1	72
	A2	73
	A3	71
SO-2011	A1/A4*	11
	A2/A3*	17
SO-2043	A1/A3*	28
	A2/A4*	29

* Additional driver(s) only for models with white digits.

** The BA-2029 requires a seventh driver with white digits.

*** The SO-2021 and SO-2023 require a fourth driver with white digits.

Pari-Mutuel Models

Model	Driver # & Address	
PM-2100	A1 & A2	21
	A3	22
PM-2101	A1	14
PM-2102	A1	15
	Objection	228 (H)
	Dead Heat	229 (H)
PM-2103	A1	17
	A2	18
PM-2104	A1	19
	A2	20
PM-2105	A1 & A2	11
	Track	222 (H)
PM-2106	A1 & A3	26
	A2 & A4	27
PM-2107	A1	12
	A2	13

Model	Driver # & Address	
PM-2108	A1	23
	A2	24
	A3	25
PM-2109	A1 & A2	26
	A3	27
PM-2110	A1	21
	Pool	230 (G)
PM-2111 (1-5)	A1	70
	A2	71
	A3	72
PM-2111 (6-10)	A4	72
	A5	73
	A6	74
PM-2112	A1 & A3	26
	A2 & A4	27
PM-2113	A1 & A3	26
	A2 & A4	27

H = home side select G = guest side select

Tennis Models

Refer to **DWG-1202417** in **Appendix B** for addressing information for up to 12 courts.

Troubleshooting

Power Supplies

Reference Drawings:

Power Supply Enclosure; 300/600/900 Watt **DWG-3320541**

If a certain group of digits is not lighting up, the power supply they are all connected to may need to be replaced. While most displays only require one 300 W power supply for each driver, displays with 36" and 48" digits will also have at least one more power supply located in a separate enclosure (refer to **DWG-3320541**).

Replacing a 300 W Power Supply

1. Open the digit panel or display access panel nearest the power supply as described in **Component Locations and Access (p.5)**.
2. Remove the metal cover of the driver enclosure by lifting it up, then back and down to access the power supply.
3. Locate the power supply (**Figure 10**) and disconnect all wires connected to it.
4. Use a 9/32" nut driver to remove the hardware securing the power supply.
5. Fasten the new power supply in place and reconnect all wires.
6. Put the metal cover back on the enclosure, securely close the access panel, and then power up and test the display to verify the issue has been resolved.

Replacing a 1000 W Power Supply (Prior to May 2016)

Reference Drawings:

Enclosure: 1000W Power Supply **DWG-274431**

1. Open the digit panel or display access panel nearest the power supply as described in **Component Locations and Access (p.5)**.
2. Loosen the screws to remove metal cover from the power supply enclosure.
3. Remove the mounting plate from the enclosure, remove the circuit board attached to the power supply, and detach the power supply from the mounting plate.
4. Attach the circuit board to the new power supply and secure the power supply to the mounting plate.
5. Put the metal cover back on the enclosure, securely close the access panel, and then power up and test the display to verify the issue has been resolved.

Note: If replacing the 1000 W power supply (Daktronics part # A-1856R) does not seem to resolve the problem, try replacing its circuit board (part # OP-1337-2000). This circuit board also contains fuses for each output jack. If a single digit doesn't work, a fuse may be blown. Replace the fuse(s) as needed with part # F-1058.

Radio Connections

To determine the radio connection settings between the display and control console, first power off any radio-equipped consoles in the area, then cycle power to the display, and watch for the radio settings. These settings appear in different locations based on the scoreboard layout:

- When using an **All Sport®** console, the **RC-200** hand-held controller, or the **DAK Score** mobile app, the display will show “bX CY” where X is the Broadcast group number and Y is the Channel number. The default is b1C1.

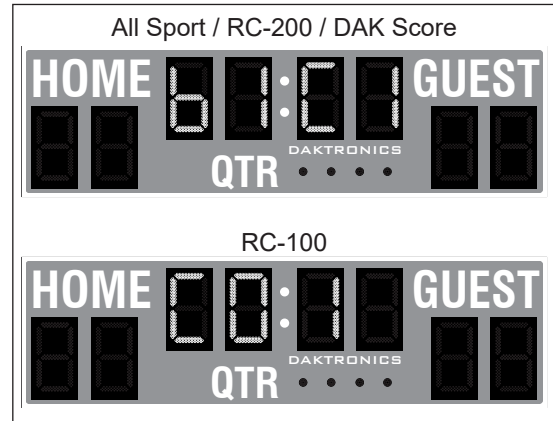


Figure 12: Radio Settings in Clock Digits

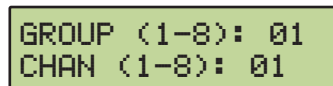
- If there is a clock, the settings appear in the first four clock digits (Figure 12).
- If there is no clock, the settings should appear in the Home and Guest score digits, but this may vary by scoreboard model.
- Scoreboards capable of displaying speed of pitch may also have separate radio settings for the second All Sport console controlling those digits.
- When using the **RC-100** hand-held controller, the display will show “CXX”, where the XX is a channel from 01-15 (Figure 12). The default is channel 01.

If these settings do not appear, the radio receiver may need to be repaired/replaced.

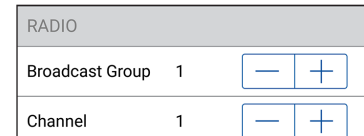
To make sure the channel and broadcast settings of the receiver in the display match those set in the console/scoring app, refer to the appropriate [control console manual](#).



All Sport Radio Settings



RC-200 Radio Settings



DAK Score App Settings



RC-100 Radio Settings

Radio Interference

If it has been determined that a nearby display's radio signal is interfering, the settings of the radio receiver or wireless base station inside the display(s) must be changed.

- To locate the radio receiver or base station, simply look for the black antenna sticking out the front of the display. Component Location drawings also show the exact position where to mount the radio receiver.
- Open the access panel to which the receiver is attached as described in **Component Locations and Access (p.5)**.

The channel selection process varies depending on whether the display is equipped with an All Sport Radio Receiver or an RC-100/RC-200 Base Station.

All Sport Radio Receiver

1. The radio receiver has a plastic cover with a window to view status indicators (**Figure 13**).

Note: While it is necessary for the display to be powered on to check the indicators, always disconnect power before servicing.

2. Remove the four screws in each corner using a #2 Philips screwdriver and lift off the cover.
3. Use a small flathead screwdriver to set the **CHAN** and **BCAST** switches to a new channel and broadcast group (1-8) as needed. Leave **FUNC** set to "1". Refer to **Figure 14**.
4. Screw the cover back on and securely close the access panel.
5. Enter the new radio settings into the console/scoring app to test the radio control (refer to the appropriate [control console manual](#)).

Refer to the **Gen VI Radio Installation Manual** ([DD2362277](#)) for more information.

RC-200 Base Station

1. The radio base station has a plastic cover with a window to view status indicators (**Figure 13**).

Note: While it is necessary for the display to be powered on to check the indicators, always disconnect power before servicing.

2. Remove the four screws in each corner using a #2 Philips screwdriver and lift off the cover.
3. Use a small flathead screwdriver to set the **CHAN** and **BCAST** switches to a new channel and broadcast group (1-8) as needed. The **FUNC** switch will typically be set to "2" for most scoring displays. Refer to **Figure 14**.
4. Screw the cover back on and securely close the access panel.
5. Enter the correct channel setting, broadcast group setting, and sport code into the RC-200 handheld controller to test the radio connection.

For more information, refer to the **Remote Control System RC-200 All Sport Operation Manual** ([DD3572889](#)).

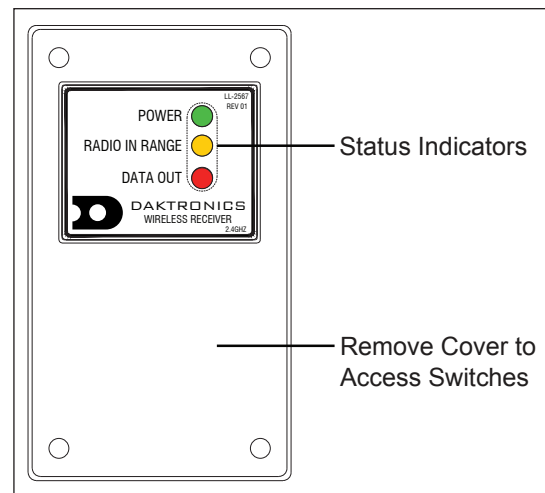


Figure 13: Radio Receiver w/ Cover

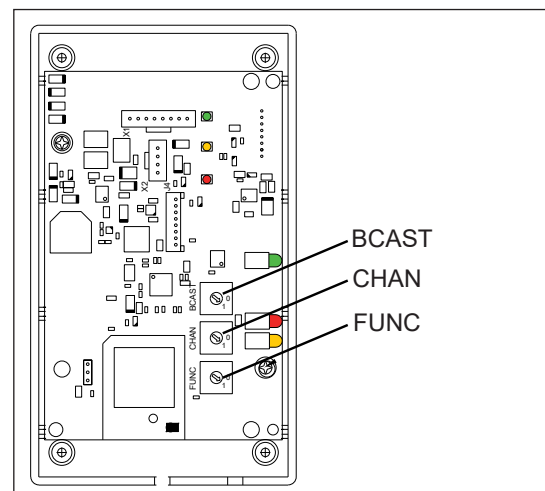


Figure 14: Radio Receiver Switches

RC-100 Base Station

1. Use a small flathead screwdriver to set the S1 switch (**Figure 15**) to the desired channel (1-15).
2. Securely close the display access panel.
3. Enter the correct channel setting and sport code into the RC-100 handheld controller to test the radio connection.

For more information, refer to the **Remote Control System RC-100 All Sport Operation Manual (ED-15133)**.

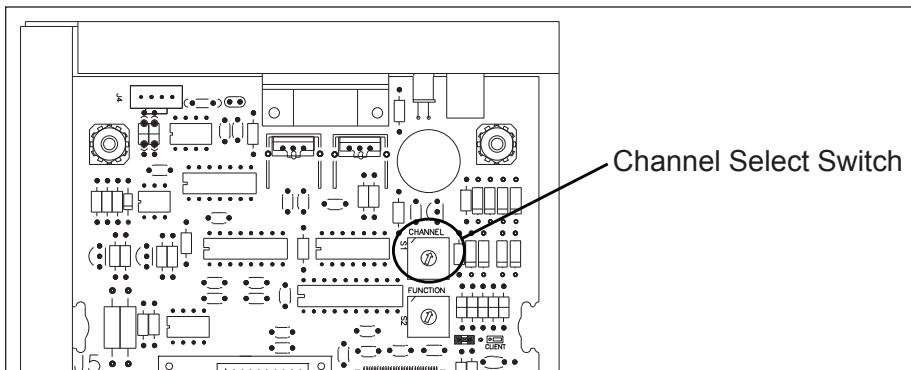


Figure 15: Channel Select Switch (Internal Receiver)

Horns

For scoreboards that include clocks and have horns installed, refer to the **Outdoor Scoreboard Horns Installation Manual (DD3088739)**.

Replacement Parts

The following table contains scoreboard components that may require replacement. Many of the other components will have attached part number labels.

Description	Part Number
Digit, 10", 7-seg outdoor LED, red	0A-1192-6120
Digit, 15", 7-seg outdoor LED, red	0A-1192-6130
Digit, 18", 7-seg outdoor LED, red	0A-1192-6140
Digit segment, 24" outdoor LED, red (vertical)	0A-1192-6150
Digit segment, 24" outdoor LED, red (horizontal)*	0A-1192-6151
Digit segment, 30" outdoor LED, red (vertical)	0A-1192-6160
Digit segment, 30" outdoor LED, red (horizontal)**	0A-1192-6161
Digit segment, 36" outdoor LED, red (vertical)***	0A-1192-6170
Digit segment, 36" outdoor LED, red (horizontal)***	0A-1192-6171
Digit segment, 48" outdoor LED, red (vertical)***	0A-1192-6180
Digit segment, 48" outdoor LED, red (horizontal)***	0A-1735-8123
2" indicator, red	0A-1192-6190
4" indicator, red	0A-1192-6191
Digit, 10", 7-seg outdoor LED, amber	0A-1192-6220
Digit, 15", 7-seg outdoor LED, amber	0A-1192-6230
Digit, 18", 7-seg outdoor LED, amber	0A-1192-6240
Digit segment, 24" outdoor LED, amber (vertical)	0A-1192-6250
Digit segment, 24" outdoor LED, amber (horizontal)*	0A-1192-6251

Description	Part Number
Digit segment, 30" outdoor LED, amber (vertical)	0A-1192-6260
Digit segment, 30" outdoor LED, amber (horizontal)**	0A-1192-6261
Digit segment, 36" outdoor LED, amber (vertical)***	0A-1192-6270
Digit segment, 36" outdoor LED, amber (horizontal)***	0A-1192-6271
Digit segment, 48" outdoor LED, amber (vertical)***	0A-1192-6280
Digit segment, 48" outdoor LED, amber (horizontal)***	0A-1735-6223
2" indicator, amber	0A-1192-6290
4" indicator, amber	0A-1192-6291
Digit, 10", 7-seg outdoor LED, green	0A-1192-6320
Digit, 15", 7-seg outdoor LED, green	0A-1192-6330
Digit, 18", 7-seg outdoor LED, green	0A-1192-6340
Digit segment, 24" outdoor LED, green (vertical)	0A-1192-6350
Digit segment, 24" outdoor LED, green (horizontal)	0A-1192-6351
Digit segment, 30" outdoor LED, green (vertical)	0A-1192-6360
Digit segment, 30" outdoor LED, green (horizontal)	0A-1192-6361
Digit segment, 36" outdoor LED, green (vertical)	0A-1192-6370
Digit segment, 36" outdoor LED, green (horizontal)	0A-1192-6371
Digit segment, 48" outdoor LED, green (vertical)	0A-1192-6380
Digit segment, 48" outdoor LED, green (horizontal)	0A-1735-8323
2" indicator, green	0A-1192-6390
4" indicator, green (for Time/Lap Displays)	0A-1192-6391
2" indicator, green (vertical for BA-2032)	0A-1192-6392
Digit, 10", 7-seg outdoor LED, white	0A-1192-5420
Digit, 15", 7-seg outdoor LED, white	0A-1192-5430
Digit, 18", 7-seg outdoor LED, white	0A-1192-5440
Digit segment, 24" outdoor LED, white (vertical)	0A-1192-5450
Digit segment, 24" outdoor LED, white (horizontal)*	0A-1192-5451
Digit segment, 30" outdoor LED, white (vertical)	0A-1192-5460
Digit segment, 30" outdoor LED, white (horizontal)**	0A-1192-5461
Digit segment, 36" outdoor LED, white (vertical)***	0A-1192-5470
Digit segment, 36" outdoor LED, white (horizontal)***	0A-1192-5471
Digit segment, 48" outdoor LED, white (vertical)***	0A-1192-5480
Digit segment, 48" outdoor LED, white (horizontal)***	0A-1192-5481
2" indicator, white	0A-1192-5490
4" indicator, white	0A-1192-5491
Digit, 36" outdoor LED, Red - No Breakout Board****	0A-1192-5500
Digit, 36" outdoor LED, Amber - No Breakout Board****	0A-1192-5501
Digit, 36" outdoor LED, White - With Breakout Board****	0A-1192-5502
Digit, 48" outdoor LED, Red - With Breakout Board****	0A-1192-5503
Digit, 48" outdoor LED, Amber - With Breakout Board****	0A-1192-5504
Digit, 48" outdoor LED, White - With Breakout Board****	0A-1192-5505
Digit, 8", 7-seg outdoor LED, red	0A-1988-5403
2" indicator, red (TN-2609)	0A-1611-6134
Digit, 8", 7-seg outdoor LED, amber	0A-1611-5203
2" indicator, amber (TN-2609)	0A-1611-8234
Digit, 8", 7-seg outdoor LED, white	0A-1611-5903
2" indicator, white (TN-2609)	0A-1192-5493
FL3 Breakout Board***	0A-1735-0400
16 Column Digit Driver	0A-1782-0100

Description	Part Number
Segment breakout board (for Time/Lap Displays)	OP-1192-0019
DC out circuit board (1000W power supply)	OP-1337-2000
Signal Surge Card	OP-1611-0506
Fiber Converter Card	OP-1782-0001
Power supply; 24V, 1000W	A-1856R
Power supply; 12V 90-264VAC (backlit captions)	A-3143
Power supply, 24V, 150W	A-3471
Power supply, 24V, 300W (prior to May 2022)	A-3473
Power supply, 24V, 90-305VAC, 320W (after May 2022; additional wiring harnesses may be required when replacing an existing A-3473)	A-5061850
Fan, 24 VDC	B-1030
Strip lighting; LED, white (backlit captions)	DS-1784
Fuse; ATM-15, 32V, 15A (1000W power supply)	F-1058
Circuit Breaker; 15A,120/240 VAC (power panel)	S-1035
RFI Filter (power panel)	Z-1007
RFI Filter	Z-4252379

- * Use these digit segments to replace individual pieces of small possession indicators.
- ** Use these digit segments to replace individual pieces of large possession indicators.
- *** Use for 36" and 48" digits built after May 2016.
- **** Use for 36" and 48" digits built prior to May 2016. The entire digit panel must be replaced and requires a power supply harness adapter (0A-1192-0411).

Refer to **Section 4: Daktronics Exchange and Repair & Return Programs (p.28)** for information on exchanging or returning parts.

3 TNMCs and Electronic Captions

**Disconnect power before doing any repair or maintenance work on the display.
Permit only qualified service personnel to access internal display electronics.
Disconnect power when not using the display.**

Display Overview

Team Name Message Centers (TNMCs) are programmable LED displays that can show custom Home and Guest names or messages of about 15 characters in place of static vinyl captions. TNMCs are typically factory-installed, but they can also be added later, after the scoreboard has been mounted. Characters are shown on one line using single- or double-stroke fonts 10" (254 mm) and 14" (355 mm) high for 34 mm and 46 mm TNMC units, respectively. The 16x80-34mm units display 20" (508 mm) high fonts.

Electronic captions, on the other hand, are pre-programmed to only show specific labels to match the captions for a particular sport mode, making it much simpler to switch between sports. Characters are shown on one line using single-stroke fonts.

TNMCs and electronic captions (**Figure 16**) are both available with red, amber, or white LEDs. Refer to the table below for additional message center specifications.

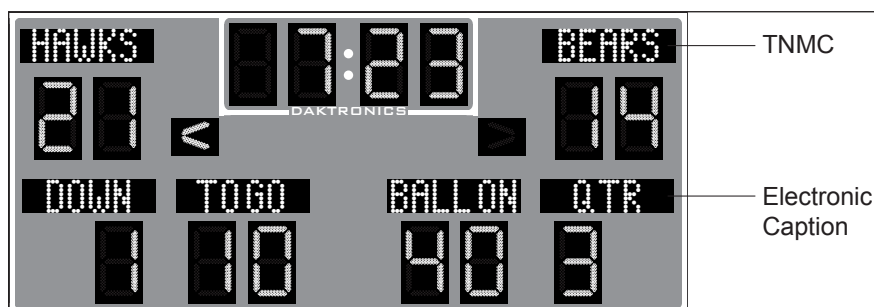


Figure 16: Football Scoreboard with TNMCs and Electronic Captions

Matrix Size	Weight*	# of 8x8 Modules	Active Display Area	Pixel Spacing
8x32	40 lb (18 kg)	4	10.6" x 42.5" (269 mm x 1080 mm)	34 mm (1.3")
8x48	60 lb (27 kg)	6	10.6" x 63.8" (269 mm x 1621 mm)	
8x64**	80 lb (36 kg)	8	10.6" x 85" (269 mm x 2159 mm)	
16x80	120 lb (54 kg)	20	21.2" x 106" (538 mm x 2692 mm)	
8x32	50 lb (23 kg)	4	14.4" x 57.6" (366 mm x 1463 mm)	46 mm (1.8")
8x48	70 lb (32 kg)	6	14.4" x 86.4" (366 mm x 2195 mm)	

* TNMCs are installed in pairs; double this value to find the total added weight.
** Available only for PM-2102 and PM-2105 Pari-Mutuel displays.

FB-2028 electronic captions come in 2 pairs of 8x32 46mm and 1 set of 8x32 34mm.

Initialization Information at Startup

Each time the display is powered up and there is no All Sport signal present, the display runs through an initialization process during which it tests all LEDs and addresses. The message center first displays the proper address number.

If the entire display fails at startup, power may not be properly connected or the address setting may not be correct on the display driver. Check both in the event of a failure.

Troubleshooting

The table below lists potential problems with the display and indicates corrective actions. This list does not include every symptom that may be encountered, but it does present several of the most common situations that may occur.

Problem	Solution/Items to Check
One or more LEDs on a single module fails to light or turn off.	Check/replace the ribbon cables on the module.
	Replace the module. Refer to Modules (p.25) .
A section of the display is not working; section extends all the way to the right side of the display.	Replace the first module/driver on the left side of the first module that is not working. Refer to Display Drivers (p.23) and Modules (p.25) .
	Replace the second module that is not working. Refer to Modules (p.25) .
	Replace the power supply assembly on the first module that is not working. Refer to Power Supplies (p.26) .
	Check/replace the ribbon cables running to the first module that is not working.
One row of modules does not work or is garbled.	Replace the first module. Refer to Modules (p.25) .
	Replace the display driver. Refer to Display Drivers (p.23) .
A group of modules which shares the same power supply assembly fails to work.	Replace the power supply assembly. Refer to Power Supplies (p.26) .
Entire display fails to work.	Check for proper line voltage into the power termination panel.
	Check/replace the ribbon cable from the display driver to the modules.
	Check the voltage settings on the power supplies.
	Check/replace the signal cable to the driver.
	Replace the display driver. Refer to Display Drivers (p.23) .

Power and Signal Summary

Reference Drawings:

Schematic; OD, 3500 TNMC, 34mm, Red/Amb	DWG-783938
Schematic; OD, 3500 TNMC, 34mm, Wht	DWG-906385
Schematic; OD, 3500, 46mm TNMC, Red/Amb	DWG-923941
Schematic; OD, 3500 TNMC, 46mm, Wht	DWG-1036125
Schematic; OD, 3500 TNMC, 16x80 34mm, R/A/W	DWG-1092559
Wiring Detail; FB-2534 or 2541 for TNMC Type Options	DWG-1092840

Refer to **DWG-783938**, **DWG-906385**, **DWG-923941**, **DWG-1036125**, or **DWG-1092559** in **Appendix A** for detailed schematics about display power and signal routing.

Note: 16x80-34mm TNMCs are capable of receiving power and signal directly via terminal block in the cabinet. Refer to **DWG-1092840**.

Display signal routing can be summarized as follows:

1. Data from the All Sport console (or DakTennis software) travels via cable harness into the scoreboard.
2. The signal travels to the driver/power enclosure through the **J1** connector on the signal surge card.
3. Data exits at **J42** via current loop harness and connects with **P43** at the driver assembly. A power/signal interconnect (ribbon cable) carries the signal from **J17** on the display driver to the first module, and the signal relays from module to module, in daisy-chain style, until it reaches the last module on the message center.
4. Electronic captions use multiple **J42-P43** connections between drivers to relay the signal to every display. Refer to the schematic drawings in **Appendix A** for precise connections of a scoreboard.

Display power routing can be summarized as follows:

1. Incoming power terminates at the terminal block in the scoreboard driver enclosure. Using the same harness and **J42-P43** connections as signal, power is routed to the display driver where it then travels to the power supply assembly.
2. From the power supply, power is relayed to the first module, and then from module to module.
3. The modules and display driver draw their power directly from the power supply assemblies (3-12.5 VDC). The power supply voltage is set by a resistor loaded on the module (via **J4**).

Component Locations and Access

Reference Drawings:

Component Loc.: 34mm Red/Amb/Wht LED TNMC G4.....	DWG-975100
Component Loc.: 46mm Red/Amb/Wht LED TNMC G4.....	DWG-975635
Schematic; OD; 3500 TNMC, 16x80 34mm, R/A/W	DWG-1092559

Figure 17 illustrates the component locations of an 8x48-34mm display cabinet with all modules removed; this layout is similar for 8x32-34mm cabinets. Note that 8x48-34mm cabinets with white LEDs require an additional power supply behind the fourth module. Also, 8x64-34mm cabinets of all colors require an additional power supply behind the sixth module. Refer to **DWG-975100** in **Appendix B**.

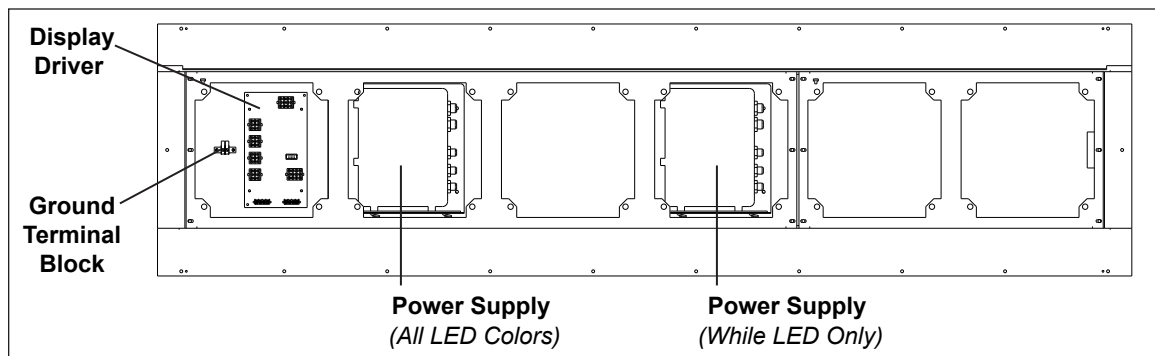


Figure 17: 8x48-34mm Display with Modules Removed

Figure 18 illustrates the component locations of a 16x80-34mm display with all modules removed. Note that cabinets do not have four power supplies; this is a composite illustration that shows the possible locations for all LED colors. Refer to **DWG-1092559**.

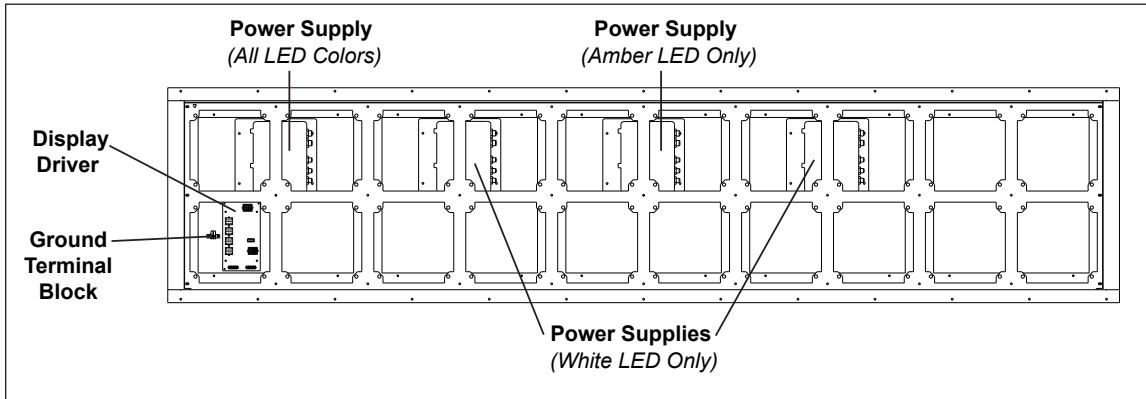


Figure 18: 16x80-34mm Display with Modules Removed

Figure 19 illustrates the component locations of an 8x48-46mm display; this layout is similar for 8x32-46mm cabinets. Note that 8x48-46mm displays with white LEDs require an additional power supply behind the fourth module. Refer to **DWG-975635**.

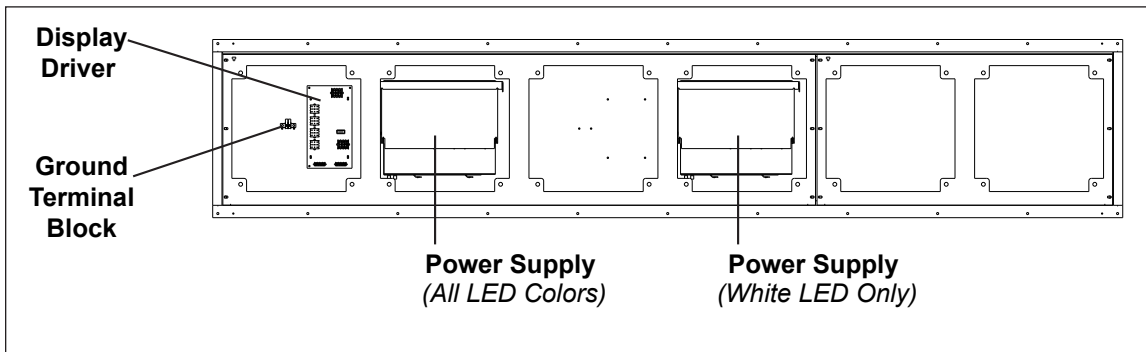


Figure 19: 8x48-46mm Display with Modules Removed

Note: White 46mm TNMCs built after May 2017 feature power supply enclosures with covers that must be removed to access the power supply.

Daktronics outdoor LED scoreboards are typically front-accessible, but some models may be ordered with rear service access. For that reason, TNMCs and electronic captions have been designed so that they may be accessed from either the front or rear.

Front Access

1. Loosen the latch fasteners on the front face of the LED module using a 1/8" hex wrench. One latch fastener is centered below the top row of pixels, and one is centered above the bottom row (**Figure 20**).
2. Turn each fastener 1/4 turn counterclockwise.

Note: Do not over turn the fastener!

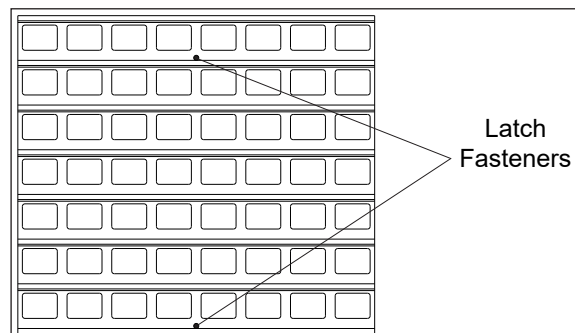


Figure 20: Module Front View

3. Carefully remove the module from the display.

Rear Access

1. To access the internal components from the rear, remove the appropriate rear-access panel from the display cabinet by loosening all four of the screws.
2. Slide the access panel sideways and carefully lift it off the loosened screws.

Note: Be careful when removing and handling the access panels as internal display components may still be attached to them.

The display driver and primary power supply will always be located behind the first access panel on the right when viewing the display from behind (**Figure 21**). Any additional power supplies are noted in the appropriate component location drawing.

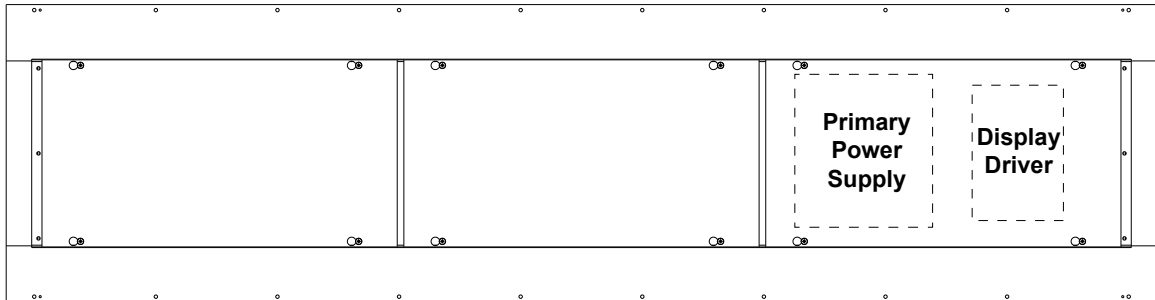


Figure 21: Display Cabinet Rear Access Panels

Display Drivers

Reference Drawings:

Address Table: Driver - MCAST G2 - TNMC Switch	DWG-328274
Specifications; Driver, MCAST, 4 Col.....	DWG-793970
Power and Address Details; Outdoor Tennis Scoreboards	DWG-1202417

The display driver, detailed in **DWG-793970** in **Appendix B**, receives signal from the control console and sends data to the modules. **Figure 22** illustrates some of the primary jacks, switches, and diagnostic LEDs on the 4-Column MCAST driver used for TNMC and electronic caption functions.

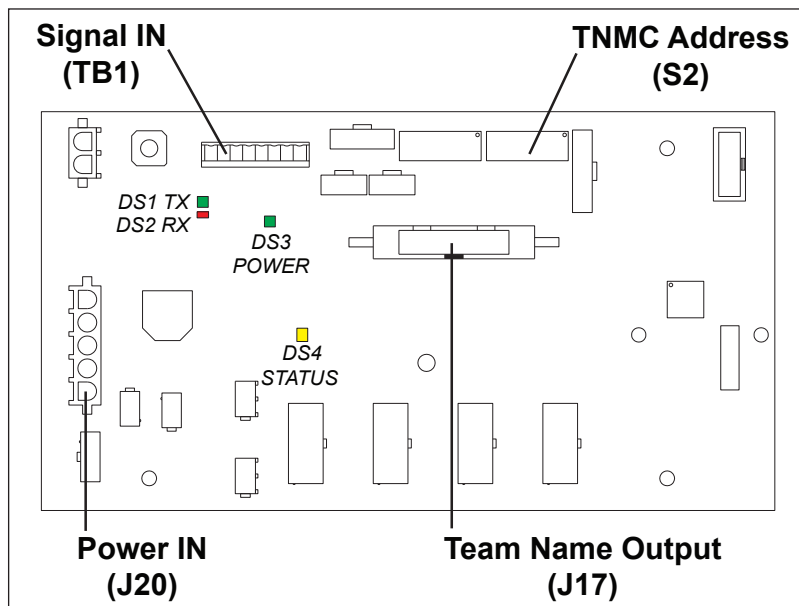


Figure 22: 4-Column MCAST Driver

The **S2** DIP switch is the component for setting the address (switches #1-4). With switches 1-4 off, the address setting for a TNMC is preset at 221 (16x80 TNMCs use address 231 for HOME and 232 for GUEST). Multi-court tennis scoreboards (and single-court scoreboards controlled by DakTennis) with TNMCs will require different addresses. Refer to **DWG-1202417** in **Appendix B**.

For electronic captions, the typical driver address is 227 (exceptions: Time Outs Left captions = address 225). Refer to **DWG-328274** in **Appendix B** for more information on setting the driver address.

The **S2** DIP switch also controls Home and Guest display. If the #5 switch is ON, the display shows Guest information. If the #5 switch is OFF, the display shows Home information.

Note: For 16x80 TNMCs, always leave the #5 switch OFF for both Home and Guest sides.

Diagnostic LEDs

Refer to **Figure 22** for the location of the four diagnostic LEDs on the display driver. The following table explains the functions of each diagnostic LED.

Note: While it is necessary to have the display powered on to check the LED indicators, always disconnect power before servicing.

LED	Function	Color	Illumination Summary
DS1	Signal TX	Green	Steady on or blinking when the driver is transmitting and off when there is no signal
DS2	Signal RX	Red	Steady on or blinking when the driver is receiving signal and off when there is no signal
DS3	Power	Green	Steady on to indicate the driver has power
DS4	Status	Amber	Blinking to indicate driver is running; steady on or off if microcontroller is not working

Replacing a Display Driver

Refer to the component location drawing in **Appendix B** to determine the location of the display driver.

To replace a display driver:

1. Access the internal components using the appropriate front/rear access method described in **Component Locations and Access (p.21)**.
2. Disconnect all power and signal connections from the display driver by squeezing the locking tabs together and pulling the connectors free. It may be helpful to label the cables or take a picture to know which cable goes to which connector when reattaching a driver.
3. Remove the four nuts holding the driver in place.
4. Position a new driver over the screws and tighten the nuts.
5. Reconnect all power and signal connectors on the new display driver.
6. Ensure the display driver is set to the correct address.
7. Power up and test the scoreboard/display to verify the issue has been resolved.

Modules

Each module assembly consists of a module housing (containing LEDs and the driver) and a louver assembly. Individual components such as louvers can be removed for service, but Daktronics recommends that the module be kept intact and that the entire assembly be sent in for repair or replacement.

Replacing a Module

To replace a module from the front:

1. Follow the steps as described in **Front Access (p.22)**.
2. Carefully disconnect all power and signal cables. It may be helpful to label the cables or take a picture to know which cable goes to which connector when reattaching a module.
3. Position a new module on the front of the display frame and reconnect all power and signal cables.
4. Re-latch the fasteners.
5. Power up and test the scoreboard/display to verify the issue has been resolved.

To replace a module from the rear:

1. Follow the steps as described in **Rear Access (p.23)**.
2. Use a 1/8" hex wrench to loosen the latch fastener assembly (**Figure 23**). Turn each fastener 1/4 turn. ***Do not over turn the fastener!***
3. While holding onto the module, push it out and turn it in such a manner (generally a sideways, diagonal turn) that it can be pulled back through the frame opening.
4. Carefully disconnect all power and signal cables. It may be helpful to label the cables or take a picture to know which cable goes to which connector when reattaching a module.
5. Reconnect all power and signal cables to the new module and push it back through and out the front of the display frame.
6. Re-latch the fasteners.
7. Power up and test the scoreboard/display to verify the issue has been resolved.

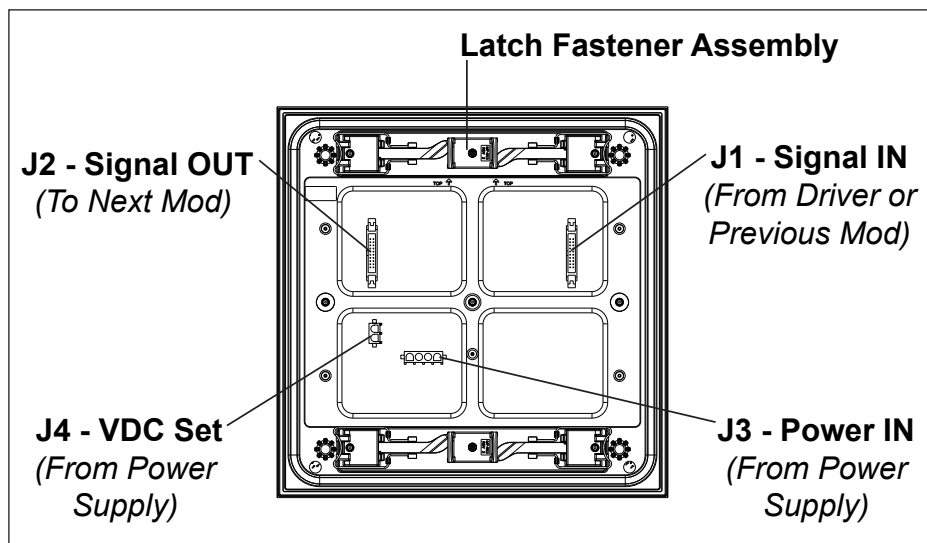


Figure 23: Module, Rear View

Weather Stripping

To ensure that the display is waterproof, weather stripping has been installed around each module. It is important that the weather stripping is attached properly at all times, or water may leak into the display and damage the components.

When installing a new module, take note of the following points:

- The weather stripping on the back edge of the module must be intact and in good condition to prevent water from seeping into the display.
- The module latches must be fully engaged to create a watertight seal around the edge of the module. The module should be firmly seated against the display when the latches are fully engaged.

Power Supplies

Power supply configurations will vary depending on the number and/or color of modules. Refer to the component location drawing in **Appendix B** to determine the number and location of all power supplies in the display.

Replacing a Power Supply

To remove a power supply:

1. Access the internal components using the appropriate method described in **Front Access (p.22)** or **Rear Access (p.23)**.
2. Disconnect all wires connected to the power supply.
3. Remove the hardware holding the power supply in place and slide it out of the display cabinet.
4. Fasten the new power supply in place and reconnect all wires.
5. Power up and test the scoreboard/display to verify the issue has been resolved.

Display Maintenance

Complete a yearly inspection to maintain safe and dependable display operation. This inspection should address the following issues:

- **Loose Hardware:** Verify that fasteners, such as bolts and rivets, have not come loose. Check and tighten or replace fasteners as required.
- **Excessive Dust Buildup:** It may be necessary to occasionally vacuum the inside of the display cabinet to remove dust/dirt buildup that may interfere with airflow.
- **Water Intrusion - Water Stain Marks:** Check electronic components for signs of corrosion. Water can enter the display where fasteners are loose, where weather stripping has come loose or has deteriorated allowing gaps in the panels, or where moisture enters around hardware.
- **Corrosion:** Check the paint, and look for possible corrosion, especially at footings, structural tie points, ground rods, and other types of grounding electrodes.

Make repairs or take corrective action immediately if any of the preceding conditions are present.

Replacement Parts

The following table contains display components that may require replacement. Many of the components within the display also have attached part number labels.

Description	Part Number
Module; 8X8-34, Red	0A-1208-5005
Module; 8X8-34, Amber	0A-1208-5008
Module; 8X8-34, White	0A-1208-5004
Module; 8X8-46, Red	0A-1541-5008
Module; 8X8-46, Amber	0A-1541-5009
Module; 8X8-46, White	0A-1541-5006
Driver, MCAST, 4 Column	OP-1388-0201
Power Supply; +9V, 85-264V AC, 150W (white 46mm)	A-2259
Power Supply; 3-6.5V, 90-264V AC, 135W (all 34mm LED colors, amber 46mm & red 46mm)	A-2307
Power Supply; 8.5-12.5V, 90-264V AC, 150W (white 46mm built prior to May 2017)	A-2481
Fan; 12VDC (white 46mm built after May 2017)	B-1103
Electrical contact lubricant (CaiLube®)	CH-1019
Cable; 20 pos, Ribbon, 18"	W-1387
Cable; 20 pos, Ribbon, 36"	W-1495

Refer to **Section 4: Daktronics Exchange and Repair & Return Programs (p.28)** for information on exchanging or returning parts.

4 Daktronics Exchange and Repair & Return Programs

Exchange Program

The Daktronics Exchange Program is a service for quickly replacing key components in need of repair. If a component fails, Daktronics sends a replacement part to the customer who, in turn, returns the failed component to Daktronics. This decreases equipment downtime. Customers who follow the program guidelines explained below will receive this service.

Before contacting Daktronics, identify these important numbers:

Model Number: _____

Assembly Number: _____

Job/Contract Number: _____

Date Manufactured/Installed: _____

Daktronics Customer ID Number: _____

To participate in the Exchange Program, follow these steps:

1. Call Daktronics Customer Service.

United States & Canada: 1-800-DAK-TRON (325-8766)

Outside the U.S. & Canada: +1-605-275-1040

2. When the new exchange part is received, mail the old part to Daktronics.

If the replacement part fixes the problem, send in the problem part being replaced.

- a. Package the old part in the same shipping materials in which the replacement part arrived.
- b. Fill out and attach the enclosed UPS shipping document.
- c. Ship the part to Daktronics.

3. The defective or unused parts must be returned to Daktronics within 5 weeks of initial order shipment.

If any part is not returned within five (5) weeks, a non-refundable invoice will be presented to the customer for the costs of replenishing the exchange parts inventory with a new part. Daktronics reserves the right to refuse parts that have been damaged due to acts of nature or causes other than normal wear and tear.

Repair & Return Program

For items not subject to exchange, Daktronics offers a Repair & Return Program. To send a part for repair, follow these steps:

1. Call Daktronics Customer Service.

United States & Canada: 1-800-DAK-TRON (325-8766)

Outside the U.S. & Canada: +1-605-275-1040

2. Receive a case number before shipping.

This expedites repair of the part.

3. Package and pad the item carefully to prevent damage during shipment.

Electronic components, such as printed circuit boards, should be placed in an antistatic bag before boxing. Daktronics does not recommend using packing peanuts when shipping.

4. Enclose:

- name
- address
- phone number
- the case number
- a clear description of symptoms

5. Ship to:

Daktronics Customer Service

[Case #]

201 Daktronics Drive, Dock E

Brookings, SD 57006

Daktronics Warranty & Limitation of Liability

The Daktronics Warranty & Limitation of Liability is located at the end of this manual. The Warranty is independent of Extended Service agreements and is the authority in matters of service, repair, and display operation.

A Specifications and Schematics

Click the links below to view scoreboard product specification sheets and schematic drawings. Product-specific installation and component location drawings are included with each spec sheet or linked below.

Note: Refer to **Figure 1** to determine a display's model number.

Single-Section Models

Model	Spec Sheet	Schematic	Model	Spec Sheet	Schematic
ADPC-2023	DD3730253	5061854*	FB-2038	DD4757195	3312544
ADPC-2031	DD3730274	5061854*	MS-915	DD1756705	5061854*
ADPC-2033	DD3730287	5061854*	MS-918	DD2167408	3302813***
ADPC-2034	DD3730298	5061854*	MS-2002	DD2167412	3312544**
ADTI-2003	DD4709955	5061854*	MS-2004	DD2167420	3312544**
ADTI-2019	DD4709957	5061854*	MS-2006	DD2240343	3302813***
ADTI-2032	DD4709958	5061854*	MS-2012	DD2167432	3312544**
BA-618	DD2118104	5061854*	MS-2024	DD1745306	3312544**
BA-624	DD2118116	5061854*	MS-2025	DD1745311	5061854*
BA-2005	DD2118134	1066858	MS-2028	DD3645470	3312544
BA-2010	DD2121807	5061854*	MS-2029	DD3645488	3312544
BA-2014	DD2118163	1066858	MS-2030	DD4042205	3312544
BA-2017	DD2118169	5061854*	MS-2032	DD4046839	3312544
BA-2019	DD2118182	1066858	MS-2126	DD3312907	5061854*
BA-2022	DD2118191	3312544**	MS-3918	DD1734766	5061854*
BA-2023	DD3023964	5061854*	RO-2010	DD1756861	5061854*
BA-2030	DD2467046	1066858	RO-2011	DD1756894	5061854*
BA-2031	DD3023984	5061854*	RO-2019	DD3634134	5061854*
BA-2032	DD3193775	5061854*	SO-918	DD2167442	5061854*
BA-2033	DD3504339	5061854*	SO-2008	DD2167448	3302813****
BA-2034	DD3504365	5061854*	SO-2013	DD2167468	3312544**
BA-2035	DD3504441	5061854*	SO-2918	DD1734747	5061854*
BA-2515	DD1734711	5061854*	TI-218	DD1757007	5061854*
BA-2518	DD1739303	5061854*	TI-2003	DD1757027	5061854*
BA-2618	DD1734727	5061854*	TI-2010	DD1757109	5061854*
BA-2715	DD1734734	5061854*	TI-2012	DD1757303	5061854*
BA-2718	DD1734740	5061854*	TI-2015	DD1757334	5061854*
CR-2002	DD1756601	5061854*	TI-2019	DD1757391	5061854*
CR-2003	DD2167525	3312544**	TI-2024	DD2191318	5061854*****
FB-824	DD2167261	5061854*	TI-2032	DD1893381	5061854*
FB-4005	DD1734755	5061854*	TI-2033	DD3017701	3034919
FB-2030	DD2190567	3312544**	TI-2034	DD3632181	5061854*
FB-2036	DD4757173	3312544	TI-2035	DD3632311	5061854*
FB-2037	DD4757185	3312544	(see notes on following page)		

- * If built before May 2022, refer to [1194169](#).
- ** If built before May 2016, refer to [1202017](#).
- *** If built before May 2016, refer to [3002321](#).
- **** If white digits, refer to [3312544](#). If red/amber digits *and* built before May 2016, refer to [3002321](#); if white digits *and* built before May 2016, refer to [1202017](#).
- ***** If white digits, refer to [3302813](#). If white digits *and* built before May 2016, refer to [3002321](#). If built between May 2016 and May 2022, refer to [1194169](#).

These models may have different component locations than shown in the spec sheets:

Model	Drawing	Model	Drawing	Model	Drawing
BA-2005	1066866	BA-2127	1152718	MS-2028	Red/Amber: 3935842 White: 3945258
BA-2019	1066797	MS-2002	Red/Amber: 1066547 White: 3025614	MS-2029	R/A/W: 3719486
BA-2026	Red/Amber: 1049222 White: 3025697	MS-2006	Red/Amber: 1086360 White: 3025634	MS-2030	Red/Amber: 3979226 White: 3979227
BA-2125	1151033				

Multi-Section Models

Model	Spec Sheet	Schematic	Model	Spec Sheet	Schematic
BA-1518	DD2118098	3302813*	FB-2025	DD2167356	1202437
BA-2025	DD1969963	1202085	FB-2026	DD2167363	1202437
BA-2026	DD1972163	3001346	FB-2027	DD2167369	1202437
BA-2027	DD1972393	1202085	FB-2028	DD1972444	3312542**
BA-2028	DD1972415	3001605	FB-3010	DD2196899	1202437
BA-2029	DD1972427	3001605	MS-2009	DD2167425	1202437
BA-2125	DD2594524	1202085	MS-2027	DD3245595	1202437
BA-2127	DD2594535	1202085	MS-2031	DD4042208	1202437
FB-2018	DD2167274	1202437	MS-2918	DD2167437	1202437
FB-2019	DD2167276	1202437	SO-2011	DD2167461	1202437
FB-2020	DD2167285	1202437	SO-2018	DD2167482	1202437
FB-2021	DD2167297	1202437	SO-2019	DD2167485	1202437
FB-2022	DD2167302	1202437	SO-2021	DD2167495	1202437
FB-2023	DD2167306	1202437	SO-2023	DD2167513	1202437
FB-2024	DD2167351	1202437	SO-2043	DD1956444	1202437

- * If white digits, refer to [1202437](#). If red/amber digits *and* built before May 2016, refer to [3002321](#).
- ** If built before May 2016, refer to [3001199](#).

These models may have different component locations than shown in the spec sheets:

Model	Drawing	Model	Drawing
FB-2024	Red/Amber: 1071502 White: 3025596	FB-2026	Red/Amber: 1070982 White: 3025606
FB-2025	Red/Amber: 1701623 White: 3025599	MS-2009	Red/Amber: 1184305 White: 3025642
FB-2026	Red/Amber: 1070992 White: 3025605	MS-2027	3419687

Modular Football Models

Click the linked drawing numbers below to view the component location and schematic drawings for a specific scoreboard model or combination of models.

Clock Sections

Model	Component Location	Schematic
FB-2500	1086738	5061854*
FB-2501	1111383	5061854*
FB-2502	Red/Amber: 1101698 White: 3356744***	3302813**
FB-2503	3260181	5061854*
FB-2504	1177797	5061854*
FB-2505	Red/Amber: 1103543 White: 3357437***	3302813**
FB-2506	1138057	5061854*
FB-2507	1086780	5061854*
FB-2508	Red/Amber: 1106891 White: 3359001***	3302813**
FB-2509	(TBD)	5061854*
FB-2510	3671343	5061854*
FB-2511	(TBD)	3302813**
FB-2513	1092398	3302813**

Model	Spec Sheet
FB-2500 & FB-2600 Series	DD2216211

* If built before May 2022, refer to [1194169](#).

** If built before May 2016, refer to [3002321](#).

*** Applies to models with white digits built after May 2016.

Home Score Sections

Model	Component Location	Schematic
FB-2530 w/ 2531	1068468	3311698*
FB-2532 w/ 2533	1086753	3311698*
FB-2535 w/ 2536	Red/Amber: 1104418 White: 3364953***	3311698*
FB-2537 w/ 2538	3085579	3311698*
FB-2539 w/ 2540	1101704	3311698*
FB-2542	(TBD)	3311698*
FB-2544 w/ 2545	1092566	3311698*
FB-2546 w/ 2547	3096198	3311698*
FB-2548 w/ 2549	3672396	3311698
FB-2560	1103640	3312544**
FB-2561	(TBD)	3312544**
FB-2562	4593778	3312544**
FB-2563	1104644	3312544**
FB-2564	Red/Amber: 1158568 White: 3360450***	3312544**
FB-2565	Red/Amber: 4143333 White: 4143382	3312544**
FB-2566	1097707	3312544**

Guest Score Sections

Model	Component Location	Schematic
FB-2570 w/ 2571	1068546	3311698*
FB-2572 w/ 2573	1086755	3311698*
FB-2574 w/ 2575	Red/Amber: 1104417 White: 3364955***	3311698*
FB-2576 w/ 2577	3085582	3311698*
FB-2578 w/ 2579	1101718	3311698*
FB-2580	(TBD)	3311698*
FB-2582 w/ 2583	1092550	3311698*
FB-2584 w/ 2585	3096211	3311698*
FB-2586 w/ 2587	3672414	3311698
FB-2600	1103642	3312544**
FB-2601	(TBD)	3312544**
FB-2602	4593779	3312544**
FB-2603	1104651	3312544**
FB-2604	Red/Amber: 1158570 White: 3360598***	3312544**
FB-2605	Red/Amber: 4143398 White: 4143401	3312544**
FB-2606	1097803	3312544**

* If built before May 2016, refer to [3000360](#).

** If built before May 2016, refer to [1202017](#).

*** Also applies to models with red/amber digits built prior to May 2016.

DOWN/TO GO & BALL ON/QTR Sections

Model	Component Location	Schematic
FB-2610	1113228	B-3312544**
FB-2611	1113229	B-3312544**
FB-2612	1097003	B-3312544**
FB-2613	1097005	B-3312544**
FB-2614	1096188	B-3312544**
FB-2615	1096189	B-3312544**
FB-2616	Red/Amber: 1104497 White: 3381818***	B-3312544**
FB-2617	Red/Amber: 1104498 White: 3381820***	B-3312544**
FB-2620 w/ 2618	Red/Amber: 1120121 White: 3407088***	B-3311698*
FB-2619 w/ 2621	Red/Amber: 1120122 White: 3407089***	B-3311698*
FB-2622	1103590	B-3312544**
FB-2623	1103617	B-3312544**
FB-2624	1121548	B-3312544**
FB-2625	1121550	B-3312544**

FB-2626	Red/Amber: 1158571 White: 3381824 ***	B-3312544 **
FB-2627	Red/Amber: 1158572 White: 3381834 ***	B-3312544 **
FB-2630 w/ 2628	Red/Amber: 1092493 White: 3407090 ***	B-3311698 *
FB-2629 w/ 2631	Red/Amber: 1092527 White: 3407091 ***	B-3311698 *
FB-2632	3044761	B-3312544 **
FB-2633	3044762	B-3312544 **
FB-2656	(TBD)	B-3312544 **
FB-2657	(TBD)	B-3312544 **
FB-2660 w/ 2658	(TBD)	B-3311698 *
FB-2659 w/ 2661	(TBD)	B-3311698 *

* If built before May 2016, refer to [3000360](#).

** If built before May 2016, refer to [1202017](#).

*** Also applies to models with red/amber digits built prior to May 2016.

Hybrid Football Models

Click the linked drawing numbers below to view the component location and schematic drawings for a specific scoreboard model.

Model	Component Location	Schematic
FB-2718	Red/Amber: 3719475 White: 3719476	3312544
FB-2719	Red/Amber: 3983274 White: 3983309	3312544
FB-2720	Red/Amber: 3719477 White: 3719478	3312544
FB-2721	Red/Amber: 3719480 White: 3719481	3312544
FB-2722	(TBD)	3312544
FB-2723	Red/Amber: 3719482 White: 3719483	3312544
FB-2724	Red/Amber: 3719484 White: 3719485	3312544
FB-2725	(TBD)	3312544

Model	Spec Sheet
FB-2700 Series	DD3646059

Team Name Message Centers

Pixel Spacing	Schematic	
	Red/Amber	White
34 mm	783938	906385
46 mm	923941	3638033 *
34mm (16x60)	1092559	

*If built before May 2017, refer to [1036125](#).

Tennis Models

Model	Spec Sheet	Schematic	Model	Spec Sheet	Schematic
TN-2603	DD2731384	3302813**	TN-2651	DD2731389	1076663 , 1076660
TN-2604	DD2731386	3302813**	TN-2652	DD2731390	1093329 , 1093330
TN-2605	DD2731387	3302813**	TN-2653	DD2731391	1093329 , 1093330
TN-2606	DD1073328	3302813**	TN-2654	DD2731393	1076663 , 1076660
TN-2607	DD1073391	3302813**	TN-2655	DD2731394	1076663 , 1076660
TN-2609	DD3310657	5061854*	TN-2656	DD2731397	1093329 , 1093330
TN-2650	DD2731388	1076663 , 1076660	TN-2657	DD2731399	1093329 , 1093330

* If built before May 2022, refer to [1194169](#).

** If built before May 2016, refer to [3002321](#).

Motorsports Displays

Model	Spec Sheet	Schematic	Model	Spec Sheet	Schematic
AR-1522	DD2910635	3002272	AR-2429	DD2910651	3002272
AR-2401	DD2910636	5061854*	CH-3001	DD2910652	-
AR-2404	DD2910639	5061854*	CH-3002	DD2910653	3002272
AR-2402	DD2910640	1202437	CH-3003	DD2910654	3002272
AR-2407	DD2954081	1202437	CH-3004	DD2910655	3002272
AR-2421	DD2910641	3002272	CH-3006	DD2910656	-
AR-2422	DD2910643	3002272	DR-2482	DD2910657	5061854*
AR-2423	DD2910644	3002272	DR-2483		
AR-2424	DD2910645	3002272	DR-3682	DD2910658	3312544**
AR-2426	DD2910647	3002272	DR-3683		
AR-2427	DD2910648	5061854*	DR-4882		
AR-2428	DD2910650	5061854*	DR-4883	DD2910660	3302813***

* If built before May 2022, refer to [1194169](#).

** If built before May 2016, refer to [1202017](#).

*** If built before May 2016, refer to [3002321](#).

Pari-Mutuel Displays

Model	Spec Sheet	Schematic	Model	Spec Sheet	Schematic
PM-2100	DD2910222	1143319	PM-2108	DD2910230	1143319
PM-2101	DD2910223	5061854*	PM-2109	DD2910232	1143319
PM-2102	DD2910224	3025146	PM-2110	DD2910233	1143549
PM-2103	DD2910225	1143439	PM-2111	DD2910235	1143319
PM-2104	DD2910226	1143439	PM-2112	DD2910236	1142902
PM-2105	DD2910227	1143532	PM-2113	DD2910238	1142902
PM-2106	DD2910228	1142902	PM-2114	DD2910239	1143439
PM-2107	DD2910229	1143439			

* If built before May 2022, refer to [1194169](#).

B Reference Drawings

Click the links below to view additional drawings referenced in this manual.
Any contract-specific drawings take precedence over the general drawings.

Reference Drawings:

- Segmentation, 7 Segment Bar Digit [38532](#)
- Enclosure: 1000W Power Supply [274431](#)
- Address Table: Driver - MCAST G2 - TNMC Switch [328274](#)
- Specifications; Driver MCAST, 4 Col..... [793970](#)
- Component Loc.: 34mm Red/Amb/Wht LED TNMC G4..... [975100](#)
- Component Loc.: 46mm Red/Amb/Wht LED TNMC G4..... [975635](#)
- Wiring Detail; FB-2534 or 2541 for TNMC Type Options [1092840](#)
- Address Table; Rotary Switches H and L [1198765](#)
- Power and Address Details; Outdoor Tennis Scoreboards [1202417](#)
- Specifications; Gyrus LED Driver, 16 Col..... [3071833](#)
- Power Supply Enclosure; 300/600/900 Watt [3320541](#)

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C Daktronics Warranty & Limitation of Liability

This section includes the Daktronics Warranty & Limitation of Liability statement (SL-02374).

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DAKTRONICS WARRANTY & LIMITATION OF LIABILITY

This Warranty and Limitation of Liability (the “Warranty”) sets forth the warranty provided by Daktronics with respect to the Equipment. By accepting delivery of the Equipment, Purchaser and End User agree to be bound by and accept these terms and conditions. Unless otherwise defined herein, all terms within the Warranty shall have the same meaning and definition as provided elsewhere in the Agreement.

DAKTRONICS WILL ONLY BE OBLIGATED TO HONOR THE WARRANTY SET FORTH IN THESE TERMS AND CONDITIONS UPON RECEIPT OF FULL PAYMENT FOR THE EQUIPMENT

1. Warranty Coverage.

- A. Daktronics warrants to the original end user (the “End User”, which may also be the Purchaser) that the Equipment will be free from Defects (as defined below) in materials and workmanship for a period of one (1) year (the “Warranty Period”). The Warranty Period shall commence on the earlier of: (i) four weeks from the date that the Equipment leaves Daktronics’ facility; or (ii) Substantial Completion as defined herein. The Warranty Period shall expire on the first anniversary of the commencement date.

“Substantial Completion” means the operational availability of the Equipment to the End User in accordance with the Equipment’s specifications, without regard to punch-list items, or other non-substantial items which do not affect the operation of the Equipment
- B. Daktronics’ obligation under this Warranty is limited to, at Daktronics’ option, replacing or repairing, any Equipment or part thereof that is found by Daktronics not to conform to the Equipment’s specifications. Unless otherwise directed by Daktronics, any defective part or component shall be returned to Daktronics for repair or replacement. This Warranty does not include on-site labor charges to remove or install these components. Daktronics may, at its option, provide on-site warranty service. Daktronics shall have a reasonable period of time to make such replacements or repairs and all labor associated therewith shall be performed during regular working hours. Regular working hours are Monday through Friday between 8:00 a.m. and 5:00 p.m. at the location where labor is performed, excluding any holidays observed by Daktronics.
- C. Daktronics shall pay ground transportation charges for the return of any defective component of the Equipment. All such items shall be shipped by End User DDP Daktronics designated facility per Incoterms® 2020. If returned Equipment is repaired or replaced under the terms of this Warranty, Daktronics will prepay ground transportation charges back to End User and shall ship such items DDP End User’s designated facility per Incoterms® 2020; otherwise, End User shall pay transportation charges to return the Equipment back to the End User and such Equipment shall be shipped Ex Works Daktronics designated facility per Incoterms® 2020. All returns must be pre-approved by Daktronics before shipment. Daktronics shall not be obligated to pay freight for any unapproved return. End User shall pay any upgraded or expedited transportation charges
- D. Any replacement parts or Equipment will be new or serviceably used, comparable in function and performance to the original part or Equipment and warranted for the remainder of the Warranty Period. Purchasing additional parts or Equipment from the Seller does not extend the Warranty Period.
- E. Defects shall be defined as follows. With regard to the Equipment (excepting LEDs), a “Defect” shall refer to a material variance from the design specifications that prohibit the Equipment from operating for its intended use. With respect to LEDs, “Defects” are defined as LED pixels that cease to emit light. Unless otherwise expressly provided, this Warranty does not impose any duty or liability upon Daktronics for partial LED pixel degradation. Notwithstanding the foregoing, in no event does this Warranty include LED pixel degradation caused by UV light. This Warranty does not provide for the replacement or installation of communication methods including but not limited to, wire, fiber optic cable, conduit, trenching, or for the purpose of overcoming local site interference radio equipment substitutions.

EXCEPT AS OTHERWISE EXPRESSLY SET FORTH IN THIS WARRANTY, TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, DAKTRONICS DISCLAIMS ANY AND ALL OTHER PROMISES, REPRESENTATIONS AND WARRANTIES APPLICABLE TO THE EQUIPMENT AND REPLACES ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ACCURACY OR QUALITY OF DATA. OTHER ORAL OR WRITTEN INFORMATION OR ADVICE GIVEN BY DAKTRONICS, ITS AGENTS OR EMPLOYEES, SHALL NOT CREATE A WARRANTY OR IN ANY WAY INCREASE THE SCOPE OF THIS LIMITED WARRANTY.

THIS LIMITED WARRANTY IS NOT TRANSFERABLE.

2. Exclusion from Warranty Coverage

This Warranty does not impose any duty or liability upon Daktronics for any:

- A. damage occurring at any time, during shipment of Equipment unless otherwise provided for in the Agreement. When returning Equipment to Daktronics for repair or replacement, End User assumes all risk of loss or damage, agrees to use any shipping containers that might be provided by Daktronics, and to ship the Equipment in the manner prescribed by Daktronics;
- B. damage caused by: (i) the improper handling, installation, adjustment, use, repair, or service of the Equipment, or (ii) any physical damage which includes, but is not limited to, missing, broken, or cracked components resulting from non-electrical causes;

DAKTRONICS WARRANTY & LIMITATION OF LIABILITY

altered, scratched, or fractured electronic traces; missing or gauged solder pads; cuts or clipped wires; crushed, cracked, punctured, or bent circuit boards; or tampering with any electronic connections, provided that such damage is not caused by personnel of Daktronics or its authorized repair agents;

- C. damage caused by the failure to provide a continuously suitable environment, including, but not limited to: (i) neglect or misuse; (ii) improper power including, without limitation, a failure or sudden surge of electrical power; (iii) improper air conditioning, humidity control, or other environmental conditions outside of the Equipment's technical specifications such as extreme temperatures, corrosives and metallic pollutants; or (iv) any other cause other than ordinary use;
- D. damage caused by fire, flood, earthquake, water, wind, lightning or other natural disaster, strike, inability to obtain materials or utilities, war, terrorism, civil disturbance, or any other cause beyond Daktronics' reasonable control;
- E. failure to adjust, repair or replace any item of Equipment if it would be impractical for Daktronics personnel to do so because of connection of the Equipment by mechanical or electrical means to another device not supplied by Daktronics, or the existence of general environmental conditions at the site that pose a danger to Daktronics personnel;
- F. statements made about the product by any salesperson, dealer, distributor or agent, unless such statements are in a written document signed by an officer of Daktronics. Such statements as are not included in a signed writing do not constitute warranties, shall not be relied upon by End User and are not part of the contract of sale;
- G. damage arising from the use of Daktronics products in any application other than the commercial and industrial applications for which they are intended, unless, upon request, such use is specifically approved in writing by Daktronics;
- H. replenishment of spare parts. In the event the Equipment was purchased with a spare parts package, the parties acknowledge and agree that the spare parts package is designed to exhaust over the life of the Equipment, and as such, the replenishment of the spare parts package is not included in the scope of this Warranty;
- I. security or functionality of the End User's network or systems, or anti-virus software updates;
- J. performance of preventive maintenance;
- K. third-party systems and other ancillary equipment, including without limitation front-end video control systems, audio systems, video processors and players, HVAC equipment, batteries and LCD screens;
- L. incorporation of accessories, attachments, software or other devices not furnished by Daktronics; or
- M. paint or refinishing the Equipment or furnishing material for this purpose.

3. Limitation of Liability

- A. Daktronics shall be under no obligation to furnish continued service under this Warranty if alterations are made to the Equipment without the prior written approval of Daktronics.
- B. It is specifically agreed that the price of the Equipment is based upon the following limitation of liability. In no event shall Daktronics (including its subsidiaries, affiliates, officers, directors, employees, or agents) be liable for any claims asserting or based on (a) loss of use of the facility or equipment; lost business, revenues, or profits; loss of goodwill; failure or increased cost of operations; loss, damage or corruption of data; loss resulting from system or service failure, malfunction, incompatibility, or breaches in system security; or (b) any special, consequential, incidental or exemplary damages arising out of or in any way connected with the Equipment or otherwise, including but not limited to damages for lost profits, cost of substitute or replacement equipment, down time, injury to property or any damages or sums paid to third parties, even if Daktronics has been advised of the possibility of such damages. The foregoing limitation of liability shall apply whether any claim is based upon principles of contract, tort or statutory duty, principles of indemnity or contribution, or otherwise
- C. In no event shall Daktronics be liable for loss, damage, or injury of any kind or nature arising out of or in connection with this Warranty in excess of the Purchase Price of the Equipment. The End User's remedy in any dispute under this Warranty shall be ultimately limited to the Purchase Price of the Equipment to the extent the Purchase Price has been paid.

4. Assignment of Rights

- A. The Warranty contained herein extends only to the End User (which may be the Purchaser) of the Equipment and no attempt to extend the Warranty to any subsequent user-transferee of the Equipment shall be valid or enforceable without the express written consent of Daktronics.

5. Governing Law; Election of Remedies

- A. The rights and obligations of the parties under this Warranty shall not be governed by the provisions of the United Nations Convention on Contracts for the International Sales of Goods of 1980. The parties consent to the application of the laws of the State of South Dakota to govern, interpret, and enforce each of the parties' rights, duties, and obligations arising from, or relating in any manner to, the subject matter of this Warranty, without regard to conflict of law principles.
- B. Any dispute, controversy or claim arising from or related to this Warranty, the parties shall first attempt to settle through negotiations. In the event that no resolution is reached, then such dispute, controversy, or claim shall be resolved by final and binding arbitration under the Rules of Arbitration of the International Chamber of Commerce. The language of the arbitration

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shall be English. The place of the arbitration shall be Sioux Falls, SD. A single arbitrator selected by the parties shall preside over the proceeding. If a single arbitrator cannot be agreed upon by the parties, each party shall select an arbitrator, and those arbitrators shall confer and agree on the appointed arbitrator to adjudicate the arbitration. The arbitrator shall have the power to grant any provisional or final remedy or relief that it deems appropriate, including conservatory measures and an award of attorneys' fees. The arbitrator shall make its decisions in accordance with applicable law. By agreeing to arbitration, the Parties do not intend to deprive any court of its jurisdiction to issue a pre-arbitral injunction, pre-arbitral attachment, or other order in aid of arbitration proceedings and the enforcement of any award. Without prejudice to such provisional remedies as may be available under the jurisdiction of a court, the arbitrator shall have full authority to grant provisional remedies and to direct the Parties to request that any court modify or vacate any temporary or preliminary relief issued by such court, and to award damages for the failure of any Party to respect the arbitrator's orders to that effect.

6. Availability of Extended Service Agreement

- A. For End User's protection, in addition to that afforded by the warranties set forth herein, End User may purchase extended warranty services to cover the Equipment. The Extended Service Agreement, available from Daktronics, provides for electronic parts repair and/or on-site labor for an extended period from the date of expiration of this warranty. Alternatively, an Extended Service Agreement may be purchased in conjunction with this Warranty for extended additional services. For further information, contact Daktronics Customer Service at 1-800-DAKTRONics (1-800-325-8766).

Additional Terms applicable to sales outside of the United States

The following additional terms apply **only** where the installation site of the Equipment is located outside of the United States of America.

1. In the event that the installation site of the Equipment is in a country other than the U.S.A., then, notwithstanding Section 5 of the Warranty, where the selling entity is the entity listed in Column 1, then the governing law of this Warranty is the law of the jurisdiction listed in the corresponding row in Column 2 without regard to its conflict of law principles. Furthermore, if the selling entity is an entity listed in Column 1, then the place of arbitration is listed in the corresponding row in Column 3.

Column 1 (Selling Entity)	Column 2 (Governing Law)	Column 3 (Location of Arbitration)
Daktronics, Inc.	The state of Illinois	Chicago, IL, U.S.A.
Daktronics Canada, Inc.	The Province of Ontario, Canada	Toronto, Ontario, Canada
Daktronics UK Ltd.	England and Wales	Bristol, UK
Daktronics GmbH	The Federal Republic of Germany	Wiesbaden, Germany
Daktronics Hong Kong Limited	Hong Kong, Special Administrative Region of the P.R.C.	Hong Kong SAR
Daktronics Shanghai Co., Ltd.	The Peoples Republic of China	Shanghai, P.R.C.
Daktronics France, SARL	France	Paris, France
Daktronics Japan, Inc.	Japan	Tokyo, Japan
Daktronics International Limited	Macau, Special Administrative Region of the P.R.C.	Macau SAR
Daktronics Australia Pad Ltd	Australia	Sydney, Australia
Daktronics Singapore Pte. Ltd	Singapore	Singapore
Daktronics Brazil LTDA	Brazil	São Paulo, Brazil
Daktronics Spain S.L.U.	Spain	Madrid, Spain
Daktronics Belgium N. V	Belgium	Kruikeke, Belgium
Daktronics Ireland Co. Ltd.	Ireland	Dublin, Ireland

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